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FOREST HABITAT TYPES SOUTH OF THE MOGOLLON RIM, ARIZONA AND NEW MEXICO

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by

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RESEARCH SUMMARY

Forest habitat types defined by plant associations are identified and described south of the Mogollon Rim in Arizona and New Mexico. The final hierarchical vegetation classification is based on 123 sample plots. A total of 7 climax series and 28 habitat types are defined. Keys based on indicator plant species are provided for field identification of the types. Descriptions for each habitat type are included along with tables to portray the ecological distribution of characteristic species. Soils, successional trends, and preliminary management implications are described for each habitat type based on field observations and current information. Relationships to other habitat type investigations in the Rocky Mountains are discussed.

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INTRODUCTION

Forestlands are valuable public resources that provide opportunities for timber, livestock, wildlife, watershed, and recreational use. Effective management of forest resources requires a thorough understanding of how different land units respond to different management practices and natural impacts.

Land units capable of supporting a given plant association at climax are defined as the same habitat type (Daubenmire 1968). Since natural vegetation integrates all impinging environmental factors (Daubenmire 1976), a given habitat type encompasses a relatively narrow range of biotic potential and thus management options. Currently, more than 30 forest habitat type classifications are available in the western United States as summarized by Pfister (1981). Such growing acceptance throughout the West speaks well for the merit of the habitat type classification system for providing an ecologically-based method of deliniating ecosystems (Layser 1974). Additionally, habitat types provide a common system for improving communication among diverse investigators, and aide in improving sampling design and experimental layout (Pfister et al. 1977).

The objective of this study was the identification and description of forest habitat types in the mountains south of the Mogollon Rim in Arizona and New Mexico. The final classification is primarily based on vegetation. However, to produce a sound ecological classification, soils and landform were also considered in the identification and description of habitat types (DeVelice et al. 1983).

Previous to this study, intensive documentation of the forest vegetation south of the Mogollon Rim in Arizona and New Mexico had not

taken place. Southwestern forest habitat type classifications by Alexander et al. (1984), DeVelice et al. (1983), Fitzhugh et al. (1983), and Hanks et al. (1983) involved vegetation to the north and east of the study area. These classifications are of limited usefulness in the basin and range mountains south of the Mogollon Rim since the regions characteristic Madrean vegetation is poorly-represented or absent in the other study areas. Moir and Ludwig (1979) described mixed conifer and spruce-fir forests in the area but did not sample the Pinus ponderosa, P. leiophylla, and P. engelmannii forests. Other studies have either involved limited sampling areas or did not attempt to classify the forests into units of similar vegetation. Blumer (1909) and Sawyer and Kinraide (1980) sampled in the Chiricahua Mountains, Shreve (1919) and Martin and Fletcher (1943) described vegetation patterns in the Pinaleno Mountains, and Whittaker and Niering (1965) sampled in the Santa Catalina Mountains (west of our study area).

STUDY AREA

The study area encompasses the forests south of the Mogollon Rim in Arizona and New Mexico. Specifically, the forests studied occur in the Chiricahua, Pinaleno, Galiuro, Santa Teresa, and Pinal mountains of Arizona, and the Peloncillo Mountains of both Arizona and New Mexico. Forestlands included in this study are those that support one of, or a combination of, the following coniferous tree species: Abies lasiocarpa, Picea engelmannii, Abies concolor, Pseudotsuga menziesii, Pinus ponderosa, Pinus engelmannii, and Pinus leiophylla.

All of the data were collected within National Forests or National Monuments. The sampling area ranged in elevation from about 5,000 to 10,700 feet (1,500 to 3,250 m) and encompassed approximately 800,000 acres (325,000 hectares).

According to the physiographic provinces of Arizona as defined in Wilson (1962), the study area is included in the Mountain Region of the Basin and Range Province. Predominant parent materials in the study area include rhyolite in the Chiricahua, Galiuro, and Peloncillo mountains, and granite and metamorphic rocks (e.g., shale, schist) in the Pinaleno, Pinal and Santa Teresa mountains.

Mountain climates of the western United States have been described by Baker (1944) and Bradley (1976). Unfortunately, few satisfactory climatic stations exist at higher elevations in southern Arizona and New Mexico to reveal much about climate. Only generalizations can be made. The average temperature lapse rate is 5.5 degrees F per 1000 feet (0.6 degrees C per 100 m) elevation increase. The number of frost-free days within the study area varies from less than 100 days at 10,000 feet (3,050 m) to over 200 days at 5,000 feet (1,500 m).

Generally, precipitation increases with elevation in the mountains. Annual precipitation in the study area varies from approximately 14 inches at 5,000 feet elevation (355 mm; 1,500 m) to approximately 30 inches at 10,000 feet (760 mm; 3,050 m). Maximum snowfall accumulations vary from 10 inches (250 mm) to 100 inches (2,500 mm). An average of 50 percent of the annual precipitation falls during the period of July through September. This average varies little with elevation (Baker 1944).

METHODS

Field Sampling

A ecological classification of forests south of the Mogollon Rim in Arizona and New Mexico was produced using the habitat type concept developed by Daubenmire (1952, 1976). Specific methodology used in sampling and analysis follow Moir and Ludwig (1983) and Pfister and Arno (1980) and are not repeated here.

Prior to beginning field work, a search of the literature dealing with historical land use and ecology of forests in the study area was undertaken. In addition, Forest Service personnel within specific Ranger Districts were interviewed for information available in unpublished, local reports and on resource management maps. Using this background information, a specific strategy for studying the forests of the study area was formulated.

Each 375 square-meter sample plot was selected within stands of climax or near climax vegetation. Areas severely overgrazed, recently logged, herbicide treated, mechanically disturbed, artificially seeded, or irrigated were not sampled. Plots establishment was restricted to portions of stands that appeared relatively uniform in topography and vegetation structure and composition. Efforts were made to locate plots to accurately represent tree and undergrowth composition, stocking, and visible site factors of the stand.

About 65 plots were taken in Meditterranean-type, pine-live oak ecosystems, about 15 in Pseudotsuga menziesii and Pinus ponderosa /Quercus gambelii forests, and about 40 plots in other forest types. Both reconnaissance plots and analytical plots were included in the sample of plots (Daubenmire and Daubenmire 1968; Franklin et al. 1970; Pfister and Arno 1980; Moir and Ludwig 1983), at a ratio of about 4:1,

respectively. Analytic plots were used to check and calibrate accuracy of vegetation coverage as estimated by the reconnaissance plot method (Pfister and Arno 1980). The reconnaissance method is more rapid than the analytic plot method by a factor of two to three.

Data on plot location, site characters and vegetation (see Moir and Ludwig 1983) were recorded on field forms found to be efficient and complete for our habitat type studies in northern New Mexico and southern Colorado. These data forms are similar to these shown in Pfister and Arno (1980) and in Ronco et al. (1978). Three documentary photographs (35 mm - color prints) were taken in each plot.

A total of 123 plots were sampled. Five of the 123 plots were not included in the final analyses since they represented early seral communities or were outside the scope of this study. To include the entire spectrum of forest habitat types in the classification, 24 mixed conifer and 5 spruce-fir plots already sampled within the study area (Moir and Ludwig 1979) were included in the data set. In addition, in 86 of the 123 study plots a complete soil profile description was made for a soil pit in the center of each plot. The soils were classified to the subgroup level of soil taxonomy (Soil Survey Staff 1975). Designation of soil moisture and temperature regimes follows Carleton and Brown (1983).

Data Analysis

At the end of each field season (summers of 1982 and 1983) plant voucher collections were identified and species field codes were replaced by the known species codes. Complete plot location data (e.g., UTM and Rectangular System coordinates) were then recorded from plot locations marked on the topographic maps. This and soil-site data were

computer coded in a standard format.

The data were analyzed using the successive approximation classification strategy outlined by Pfister and Arno (1980) and Moir and Ludwig (1983). Releve table manipulations (Shimwell 1971) and ordination (Pielou 1977) were used to develop the habitat type classification. Evaluation of the objective results obtained by quantitative analyses was tempered by subjective ecological judgement (Williams 1967).

Plots were grouped according to the tree species showing the strongest evidence of self perpetuation, i.e., the climax tree species. This is termed the "series" level of the classification (Hoffman and Alexander 1976). Each series was then subdivided based on the dominant or characteristic understory species in the climax community. Thus, habitat type names are two-part, e.g., Pinus ponderosa/Quercus hypoleucoides; the first part of the name being the climax tree species and the second part the climax understory indicator species (Pfister and Arno 1980). Habitat type names were chosen for brievity and for appropriateness in conveying a sense of a given range of environmental conditions. The name does not infer that the only species in the stand are those given in the name. Co-dominance of two or more tree species at climax and the occurrence of 30 or more understory species is not uncommon.

Keys and descriptions for each habitat type were written. The result is a vegetation classification system for the forests south of the Mogollon Rim in Arizona and New Mexico.

Soils and vegetation relationships, successional trends, management implications, and relationships to other habitat type classifications in the Rocky Mountains were also described for each habitat type. Such descriptions must be considered with caution since they are based only

on the data taken in developing the classification. More accurate elucidation of these relationships would require specifically designed major studies. Particular caution is necessary in relating the habitat types described here to those described in other areas. Composition of the entire stands need to be considered since the species complement varies geographically (Pfister 1972).

Taxonomic Considerations

Nomenclature follows Kearny and Peebles (1951) except for revisions suggested in Weber and Johnston (1979) and Correll and Johnston (1970). Revised names of species in this study and their synonyms are listed in Appendix Table 1.

Certain species were difficult to identify in the field. Particularly difficult was the identification of Quercus arizonica versus Q. grisea since intergrading specimens were commonly found. Since Q. arizonica is regarded as being more common than Q. grisea in the study area (Kearney and Peebles 1951) all specimens of this complex were lumped under the name Q. arizonica.

RESULTS AND DISCUSSION

A total of seven series and 28 habitat types were identified (Table A-2). In identifying these habitat types in the field, all descriptive material given in this chapter and in the Appendix tables (vegetation- Table A-3; site characteristics- Table A-4; successional trends- Table A-5) will prove useful in ascertaining the correct type. Ideally, since the classification was developed using mature (i.e., late seral or climax), minimally-disturbed forest, identification of habitat types using the keys and descriptions given is best achieved through examining undisturbed vegetation. However, habitat types can usually be identified even in seral stands by noting the relative reproductive success of the species present, or by comparison with adjacent mature stands having similar topographic and edaphic features (Arno 1982; Pfister et al. 1977).

The bulk of the descriptive materials presented here relate to non-riparian forests having soil profile development. Layser and Schubert (1979) provide general series descriptions for Southwestern forests. Six of Layser and Schubert's (1979) eight forest series were found in the study area. In addition, a Pinus engelmannii series is here recognized. Generally, the order of habitat types described is from cool and moist to warm and dry, e.g., from high to low elevation.

Field identification of habitat types using this report would best be accomplished in the following way:

1. Locate that portion of the stand that, in your judgement, best represents the stand's typical vegetation. The tree canopy should be mature and the undergrowth should not be severely disturbed. Extrapolation from the nearest mature stand

occupying a similar site may be necessary in some areas of widespread disturbance.

2. Note mature trees and their reproduction (by species) within the stand. Particular attention must be given to tree reproduction; reference to trees in the key primarily concerns regeneration since habitat types are based on "potential" climax, not necessarily current conditions.
3. Accurately identify and estimate cover of dominant shrub and herb species within the stand and note presence of indicator species given in the key that may have minor cover in the stand sampled.
4. Note the physical setting of the stand including elevation, aspect, percent slope, landform, and soil depth and coarse fragment content.
5. Identify the habitat type by following the dichotomous key.
6 If difficulty arises in habitat type identification, compare the stand with the synoptic descriptions and species frequency and cover tables given for the series and types in question and decide which best fits the stand characteristics.
7. If it becomes apparent that an undescribed habitat type has been found, the stand should be measured thoroughly or its precise location given to the U.S. Forest Service regional ecologist.

Key to the Habitat Types

Use the definitions given below for canopy coverage terms in the key. In stands where dense shading or heavy litter accumulation has resulted in a unusually sparse undergrowth, adjust the definitions to the next lower coverage class. See Appendix Table 1 for definitions of species codes used in the key.

Scarce = less than 1 % cover, versus Common = greater than 1 % cover;

Poorly-represented = less than 5 % cover, versus Well-represented = greater than 5 % cover; and

Abundant = greater than 25 % cover

SERIES KEY

1. Picea engelmannii and/or Abies lasiocarpa climax (regeneration clearly not accidental)---- PIEN and ABLA Series

1. Picea engelmannii or Abies lasiocarpa scarce or absent---- 2

2. Abies concolor present and successfully reproducing; usually co-dominant with Pseudotsuga menziesii
---- ABCO Series

2. Abies concolor scarce or absent ---- 3

3. Pseudotsuga menziesii present and successfully reproducing; sometimes co-dominant with Pinus strobiformis ---- PSME Series

3. Pseudotsuga menziesii scarce or absent ---- 4

4. Pinus ponderosa present and successfully reproducing
---- PIPO Series

4. Pinus ponderosa scarce or absent ---- PINEN and PILE Series

HABITAT TYPE KEY

PIEN and ABLA Series

1. Abies lasiocarpa present and successfully reproducing ---- 2

1. Abies lasiocarpa scarce or absent ---- 3

2. Vaccinium myrtillus well-represented; forests with well-developed understories ---- ABLA/VAMY HT

2. Vaccinium myrtillus poorly-represented or absent, understory of vascular plants very sparse ---- ABLA/MOSS HT

3. Carex foenea well-represented; Pseudotsuga menziesii scarce or absent ---- PIEN/CAFO HT

3. Carex foenea poorly-represented or absent; Pseudotsuga menziesii common ---- PIEN/ACGL HT

ABCO Series

1. Acer gradidentatum well-represented ---- ABCO/ACGR HT

1. Acer grandidentatum poorly-represented or absent ---- 2

2. Carex foenea well-represented ---- ABCO/CAFO HT

2. Carex foenea poorly-represented or absent ---- 3

3. Acer glabrum well-represented ---- ABCO/ACGL HT

3. Acer glabrum poorly-reprented or absent ---- 4

4. Quercus gambelii well-represented; total vascular plant cover moderate to high ---- ABCO/QUGA HT

4. Quercus gambelii poorly-represented or absent; total vascular plant cover low ---- ABCO/Sparse HT

PSME Series

1. Acer gradidentatum well-represented ---- PSME/ACGR HT

1. Acer gradidentatum poorly-represented or absent ---- 2

2. Muhlenbergia virescens well-represented ---- PSME/MUVI HT

2. Muhlenbergia virescens poorly-represented or absent ---- 3

3. Quercus gambelii well-represented ---- PSME/QUGA HT

3. Quercus gambelii poorly-represented or absent ---- 4

4. Quercus rugosa well-represented ---- PSME/QURU HT

4. Quercus rugosa poorly-represented or absent ---- 5

5. Quercus hypoleucoides well-represented ---- PSME/QUHY HT

5. Quercus hypoleucoides poorly-represented or absent ---- PSME/QUAR HT

PIPO Series

1. Muhlenbergia virescens well-represented ---- PIPO/MUVI HT

1. Muhlenbergia virescens poorly-represented or absent ---- 2

2. Quercus gambelii well-represented ---- PIPO/QUGA HT

2. Quercus gambelii poorly-represented or absent ---- 3

3. Quercus hypoleucoides well-represented ---- PIPO/QUHY HT

3. Quercus hypoleucoides poorly-represented or absent ---- 4

4. Quercus rugosa well-represented ---- PIPO/QURU HT

4. Quercus rugosa poorly-represented or absent ---- 5

5. Quercus arizonica well-represented ---- PIPO/QUAR HT

5. Quercus arizonica poorly-represented or absent----PIPO/BOGR HT

PINEN and PILE Series

1. Quercus gambelii common ---- PINEN/MULO HT

1. Quercus gambelii scarce or absent ---- 2

2. Piptochaetium fimbriatum well-represented ---- PILE/PIFI HT

2. Piptochaetium fimbriatum poorly-represented or absent ---- 3

3. Arctostaphylos pungens or Quercus emoryi well-represented
---- PILE/QUAR HT

3. Arctostaphylos pungens or Quercus emoryi poorly-represented
or absent ---- 4

4. Quercus hypoleucoides well-represented ---- 5

4. Quercus hypoleucoides poorly-represented or absent ---- 6

5. Pinus engelmannii present and successfully reproducing
---- PINEN/QUHY HT

5. Pinus engelmannii scarce or absent ---- PILE/QUHY HT

6. Pinus engelmannii present and successfully reproducing
---- PINEN/QUAR HT

6. Pinus engelmannii scarce or absent ---- 7

7. Quercus toumeyi well-represented ---- PILE/QUTO HT

7. Quercus toumeyi poorly-represented or absent ---- PILE/QUAR HT

Habitat Type Descriptions

Abies lasiocarpa Series

1. Abies lasiocarpa/Moss Habitat Type

GEOGRAPHY. This habitat type is restricted to the highest elevations of the Pinaleno mountains.

VEGETATION. Abies lasiocarpa and Picea engelmannii co-dominate the overstory. Pseudotsuga menziesii is occasionally present as a seral component. Vascular plants are minor (total cover seldom exceeds one percent) in the understory of this comparatively dry and exposed habitat type. The absence of all but small amounts of herbs and shrubs is diagnostic of this type. Moss cover is the only prominent feature of the understory.

PHYSICAL SETTING. Elevations exceed 9,500 feet (2,900 m) and slopes vary from gentle to steep. Generally, the type occurs on mid or upper slopes of southerly exposure and on ridges.

ECOTONES. This type adjoins the Abies lasiocarpa/Vaccinium myrtillus or the Picea engelmannii/Carex foenea habitat type in less exposed situations and Abies concolor/Sparse habitat type at lower elevations.

COMMENTS. This type was first described as the Picea engelmannii/Moss habitat type in spruce-fir forests of Arizona and New Mexico by Moir and Ludwig (1979) and by Fitzhugh et al. (1983). Related types include the Picea engelmannii, Pinus aristata, Trifolium dasyphyllum, Poa habitat type (Shepherd 1975) and the Pinus contorta forest community (Peet 1981) of central Colorado. Affinities also exist with Abies lasiocarpa/Juniperus communis habitat type described in central Idaho

(Steele et al. 1981). Dix and Richards (1976) provide data from one stand on Missionary Ridge in the San Juan Mountains of Colorado that is identifiable as this Abies lasiocarpa/Moss habitat type.

This habitat type is ecologically similar to the lower elevation Abies concolor/Sparse habitat type. Both occur on cool, dry sites and are characterized by the near-absence of vascular plants in the understory.

Site quality is poor within this type and management alternatives are limited . Livestock find little forage and seldom use this habitat type though it does provide cover for deer that feed in adjacent habitat types.

Picea engelmannii Series

2. Picea engelmannii/Acer glabrum Habitat Type

GEOGRAPHY. This habitat type is restricted to high elevations in the Chiricahua Mountains.

VEGETATION. Picea engelmannii dominates the climax overstory and Abies lasiocarpa is absent in this habitat type (Figure 1). Diagnostic of the type is the presence of Pseudotsuga menziesii and Abies concolor (often co-dominant with Picea engelmannii). Populus tremuloides is a major seral species. Acer glabrum ranges from trace to abundant cover in the understory. Bromopsis ciliata, Festuca sororia, and Ligusticum porteri commonly occur in the generally sparse understory.

PHYSICAL SETTING. Elevations range from 9,000 to 9,500 feet (2,700 to 2,900 m). The type occurs on steep mid and upper slopes of generally northerly exposure. Soils are commonly Dystric Cryochrepts.

ECOTONES. Adjoining habitat types include Abies concolor/Acer glabrum and Abies concolor/Sparse.

COMMENTS. This type was first described by Moir and Ludwig (1979). Picea engelmannii occurs at its southern limit in North America within this type. Besides its occurrence in the Chiricahua Mountains the type is also represented in the Sacramento Mountains of New Mexico (Alexander et al. 1984).

Owing to its restricted area and low availability of forage this type is of minor importance for timber and forage production. Watershed, wildlife, and recreational attributes are important.

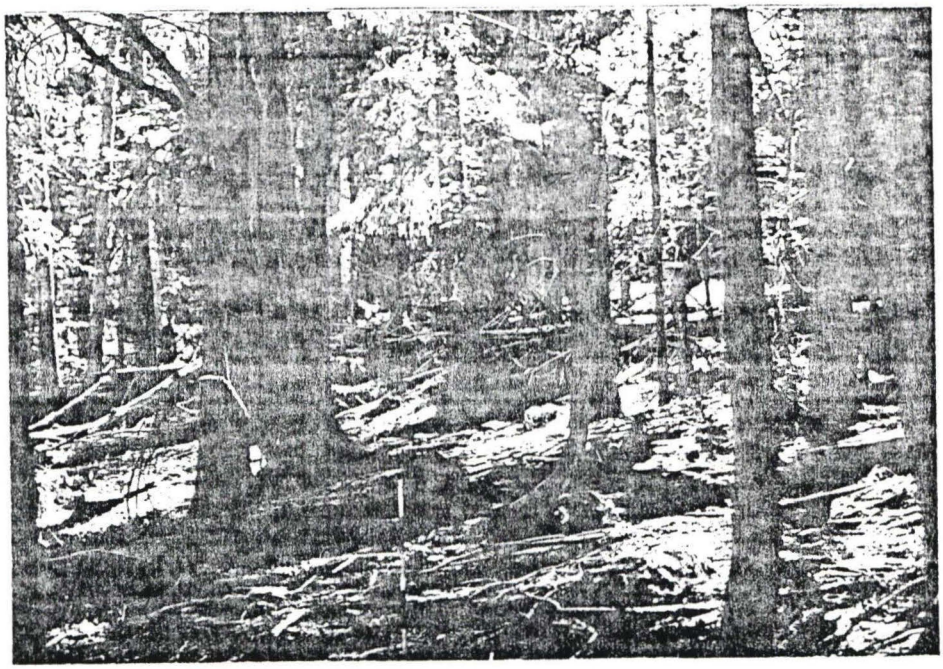

Figure 1. Picea engelmannii/Acer glabrum habitat type, Chiricahua Mountains. Sparse understory vascular plant cover is characteristic of the type. The meter stick is banded into five 2-dm segments.

Abies concolor Series

3. Abies concolor/Acer glabrum Habitat Type

GEOGRAPHY. The type occurs in the Chiricahua, Pinaleno and Pinal mountains.

VEGETATION. Tree species present include Pseudotsuga menziesii and Pinus strobiformis, in addition to Abies concolor. Populus tremuloides is an important seral tree. Acer glabrum, Bromopsis ciliata, Erigeron eximius, Fragaria americana, Geranium richardsonii, Oreochrysum parryi, and Senecio wootoni often have a high cover in the understory (Figure 2).

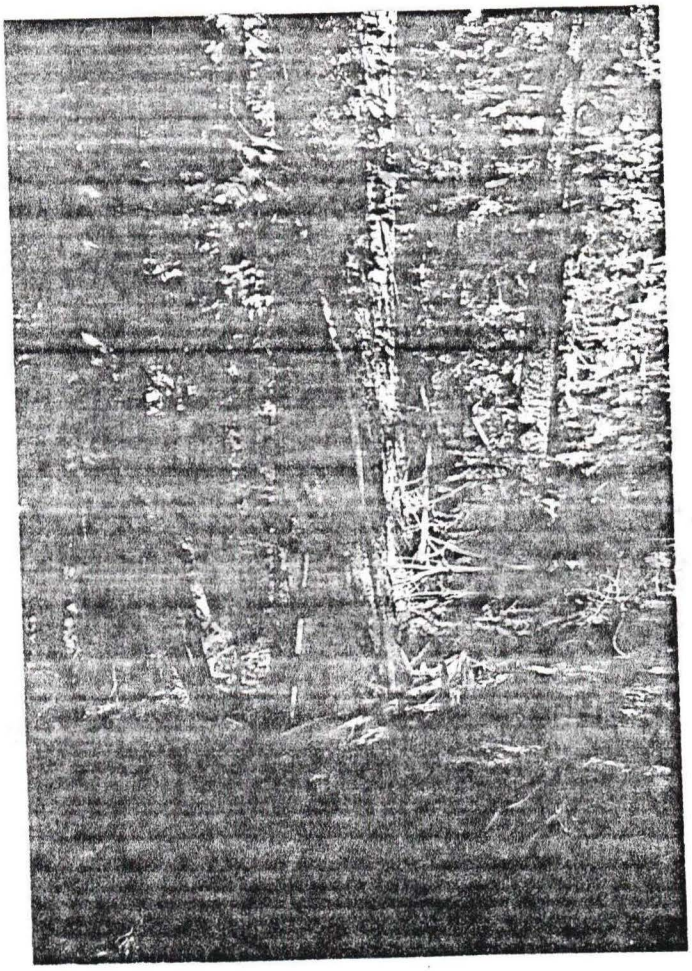

Figure 2. Abies concolor/Acer glabrum habitat type, Pinaleno Mountains. Of key importance is the dominance of Acer glabrum in the understory, and abundant herb cover

PHYSICAL SETTING. This is one of the most varied types in its topographic and vegetal characteristics. All slope aspects are represented. Lower slopes are the typical position on which the type occurs but many examples of the type can be found on mid and upper slopes. Elevations

range from 8,900 to 9,200 feet (2,700 to 2,800 m).

ECOTONES. This type intergrades to the Abies lasiocarpa/Vaccinium myrtillus habitat type in more mesic areas and to the Abies concolor/Quercus gambelii or the Abies concolor/Sparse habitat type in more xeric situations.

COMMENTS. This type represents one of the most widespread among the mixed conifer forest. The type has been described previously from many forests in Arizona and New Mexico (Alexander et al. 1984; Fitzhugh et al. 1983; Moir and Ludwig 1979) and is related to the Pseudotsuga menziesii/Pachistima myrsinites habitat type of central and northern Colorado (Hess and Wasser 1982; Hoffman and Alexander 1980). Weakly-related types are represented by the Foothill ravine forest community of Rocky Mountain National Park, Colorado (Peet 1981) and the Abies grandis/ Acer glabrum habitat type of central Idaho (Steele et al. 1981).

Owing to the cool, moist conditions characteristic of this habitat type fires are mostly light, erratic, and infrequent (Moir and Ludwig 1979). The erratic nature of fires has resulted in mosaics in forest structure within this type.

Timber productivity is poor to good. Pseudotsuga should regenerate well except when competition is severe with shrubs. Such competition may be particularly significant when shrub-growth is free of suppression via canopy removal.

Old-growth stands produce little forage for livestock and the typically steep slopes impede access. However, the shrubs provide abundant browse and cover for big game. Multi-storied shrub layers increase micro-habitat diversity for birds (Fitzugh et al. 1983).

4. Abies concolor/Sparse Habitat Type

GEOGRAPHY. This type occurs in the Chiricahua, Pinaleno, and Pinal mountains.

VEGETATION. Overstories exhibit co-dominance of Abies concolor and Pseudotsuga menziesii. Pinus strobiformis and Pinus ponderosa are sometimes important.

Understories are characterized by sparsity, with few species ever attaining coverage in excess of one percent. Species whose cover does occasionally exceed one percent include Bromopsis ciliata and Koeleria macrantha.

PHYSICAL SETTING. This relatively dry habitat type occurs on canyon sideslopes and ridges of all aspects between the elevations of 8,500 to 9,200 feet (2,600 to 2,800 m). Slopes are steep to very steep. Soils were not sampled in this habitat type.

ECOTONES. Adjoining habitat types include Abies concolor/Acer glabrum forests on moister sites and Abies concolor/Quercus gambelii on warmer sites. Cooler environments bordering this habitat type support forests dominated by Picea engelmannii or Abies lasiocarpa habitat types.

COMMENTS. This type has previously been described in Arizona and New Mexico (Fitzhugh et al. 1983; Moir and Ludwig 1979). Weak similarities exist with xeric Pseudotsuga forest communities in northern Colorado (Peet 1981), the Pseudotsuga menziesii/Physocarpus monogynus habitat type described in northern New Mexico by Moir and Ludwig (1979), and the Pseudotsuga menziesii/Arnica cordifolia habitat type described in the northern Rocky Mountains (Pfister et al. 1977; Steele et al. 1981).

In most cases, herb growth is likely limited by seasonal soil water deficits and shading (Moir and Ludwig 1979). Also, in a few cases, the sparsity may partially reflect intensive or prolonged wildlife browsing in other habitat types. Thus, caution is necessary when keying to this habitat type since in some cases depauperate stages of other habitat types may key to this Abies concolor/Sparse habitat type.

Management for all but watershed and wildlife is marginal as timber productivity and forage yields are low.

5. Abies concolor/Quercus gambelii Habitat Type

GEOGRAPHY. This type is widespread throughout the southern Rocky Mountains and commonly occurs in the Chiricahua, Pinaleno, and Pinal Mountains. Owing to the types extensive sampling elsewhere, only a single plot was sampled in the study area.

VEGETATION. Abies concolor and Pseudotsuga menziesii co-dominate in the overstory. Pinus strobiformis, Pinus ponderosa, and occasionally Juniperus deppeana are important. Quercus gambelii is the most characteristic understory species, often forming nearly impenetrable thickets, especially following overstory thinning. Quercus hypoleucoides is an important shrub or small tree. Prominent grass cover includes Bromopsis ciliata and Panicum bulbosum. Forb species diversity is often high but total cover is generally less than 10 percent.

PHYSICAL SETTING. The type occurs on all landscape positions and aspects and at elevations from 6,600 to 9,200 feet (2,000 to 2,800 m). Slopes vary from gentle to very steep. Soils are often in lithic subgroups.

ECOTONES. This habitat type often adjoins Pseudotsuga menziesii or Pinus ponderosa forests lacking an Abies component. Wetter or cooler sites merge to the Abies concolor/Acer glabrum habitat type while drier or warmer sites have grassy understories.

COMMENTS. This type has previously been described in Arizona and New Mexico (Alexander et al. 1984; Fitzhugh et al. 1983; Moir and Ludwig 1979). A major difference between this type south of the Mogollon Rim and elsewhere is the presence of such Madrean species as Quercus hypoleucoides and Q. rugosa. Fire is a major component in the ecology of these forests and the high Quercus cover may relate to its ability to reproduce vegetatively after fire. If a high fire frequency keeps conifer mortality high, persistant Quercus gambelii scrub communities may result (Brown 1958).

Timber productivity is sometimes adequate to support logging operations. This habitat type provides valuable cover and browse for deer populations.

6. Abies concolor/Acer gradidentatum Habitat Type

GEOGRAPHY. This habitat type occurs locally along drainages and protected coves in the Pinaleno and Pinal Mountains. Since it has been previously described as a major type (Moir and Ludwig 1979) only a single plot was sampled in this study in order to document its presence.

VEGETATION. Overstories exhibit co-dominance of Abies concolor and Pseudotsuga menziesii. Juglans major and Quercus gambelii are common broadleaf tree associates in addition to abundant Acer gradidentatum. Herbaceous understories are variable in their development. Carex foenea

and Thalictrum fendleri are among the most constant understory species.

PHYSICAL SETTING. The type occurs predominately as a topographic climax along drainages at comparatively low elevations (circa 7,000 feet; 2,100 m).

ECOTONES. Typically, the type adjoins the Abies concolor/Quercus gambelii habitat type upslope, and the Pseudotsuga menziesii/Acer gradidentatum habitat type down-drainage.

COMMENTS. Whittaker and Niering (1965) describe Acer gradidentatum ravine forests in the Santa Catalina Mountains that are likey this Abies concolor/Acer gradidentatum habitat type.

The mesic conditions and typically deep soils in this habitat type favor rapid tree growth, however, the resticted area of the type reduces the potential for extensive timber management. Diverse wildlife habitat exists due to the varied vegetation layers and the generally close proximity to water.

Pseudotsuga menziesii Series

7. Pseudotsuga menziesii/Muhlenbergia virescens Habitat Type

GEOGRAPHY. This type is widespread in the Chiricahua Mountains and is locally important in the Pinaleno Mountains.

VEGETATION. Pseudotsuga menziesii and Pinus ponderosa are generally present in all size classes, while Pinus strobiformis is usually present only in small size classes. Abies concolor is minor or absent. Muhlenbergia virescens is the dominant understory feature in association with an assortment of herbs.

PHYSICAL SETTING. The type occurs at elevations between 8,000 and 9,300 feet (2,450 to 2,850 m) on ridges and dry mid to upper slopes. All aspects are encountered and slopes vary from moderate to steep.

ECOTONES. The type adjoins the Pseudotsuga menziesii/Quercus gambelii and the Pinus ponderosa/Muhlenbergia virescens habitat types.

COMMENTS. Pseudotsuga menziesii/Muhlenbergia virescens habitat type was first described in Arizona by Moir and Ludwig (1979) and is in the Santa Catalina Mountains of Arizona as described by Whittaker and Niering (1965).

The often high cover of Muhlenbergia virescens and assorted herbs suggests frequent fires within this type. Areas lacking recent fire within the type, as evidenced by infrequent fresh fire scars on trees and abundant coniferous regeneration, have depauperate herb layers.

Grazing potential may be high within this type but access is often difficult and water sources are not usually readily accessible.

8. Pseudotsuga menziesii/Quercus gambelii Habitat Type

GEOGRAPHY. This type occurs in the Chiricahua, Pinaleno, Galiuro, Pinal, and Santa Teresa mountains.

VEGETATION. Pseudotsuga menziesii is dominant in the overstory. Pinus ponderosa, P. strobiformis, and Juniperus deppeana sometimes occur as subdominants. Understories vary from non-grassy Quercus gambelii-dominated situations (Figure 3) to relatively grassy associations dominated by Bromopsis ciliata, B. porteri, Koeleria macrantha, Muhlenbergia longiligula and Poa fendleriana. Symphoricarpos oreophilus is often an important shrub. The forbs, Galium asperrimum and Thalictrum fendleri are often present.

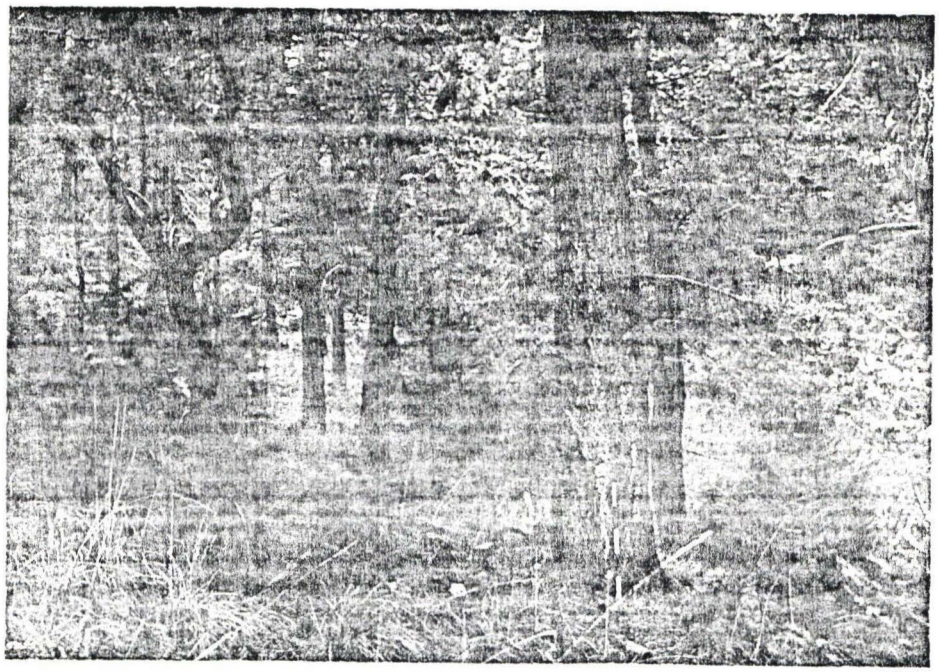

Figure 3. Pseudotsuga menziesii/Quercus gambelii habitat type, Chiricahua Mountains. Note the abundant P. menziesii reproduction, the strong dominance of Q. gambelii, and the grassy understory.

PHYSICAL SETTING. Slopes range from moderate to very steep, elevations vary from 6,300 to 7,600 feet (1,900 to 2,300 m) on northerly aspects. Soils are predominately Haploborolls and Argiborolls and are often lithic.

ECOTONES. This type occupies a position in the environmental gradient between the Abies concolor/Quercus gambelii habitat type and the Pinus ponderosa/Quercus gambelii habitat type.

COMMENTS. As in the other Quercus habitats, oak is the most conspicuous feature of the vegetation. Grasses are commonly important in the understory, so this type has broad possibilities for management, ranging from timber production to forage utilization. Vertical diversity in this "shrubby" type supports varied bird species (Fitzhugh et al. 1983).

This type is reported from Arizona and New Mexico (Alexander et al. 1984; Fitzhugh et al. 1983). Hess and Wasser (1982) described a highly

similar type in central Colorado, i.e., Pinus ponderosa/ Quercus gambellii/ Carex geyeri habitat type. Weak affinities are shared with mesic foothill woodland communities of northern Colorado (Peet 1981) and the Pseudotsuga menziesii/Symphoricarpus oreophilus habitat type from the northern Rockies (Pfister et al. 1977; Steele et al. 1981).

9. Pseudotsuga menziesii/Quercus hypoleucoides Habitat Type

GEOGRAPHY. This habitat type is found in the Chiricahua and Pinaleno mountains.

VEGETATION. Pseudotsuga menziesii dominates the overstory often in association with Pinus ponderosa and P. strobiformis. Abies concolor has minor regeneration potential. Understories are characterized by an abundance of Madrean species such as Quercus hypoleucoides, Q. arizonica, and Q. rugosa. The robust grass, Muhlenbergia longiligula typically dominates the ground cover. However, herb cover is often suppressed by the typically dense Quercus hypoleucoides layer.

PHYSICAL SETTING. The type occurs around elevations of 7,400 to 7,700 feet (2,250 to 2,350 m) on northerly to east-facing slopes.

ECOTONES. Adjoining habitat types include Pseudotsuga menziesii/Quercus gambelii in moister settings, and Pseudotsuga menziesii/Q. arizonica or Pinus ponderosa/Q. hypoleucoides on drier sites.

COMMENTS. Moir and Ludwig (1979) first described this type in southeastern Arizona and southwestern New Mexico, and the type is evident in the work of Whittaker and Niering (1965). It is among the most important forest habitat types in the study area.

Wildlife find abundant cover in this type but limited forage is

produced for either wildlife or domestic stock. Coniferous timber production is typically low since competition with Quercus spp. is generally severe.

Pinus ponderosa Series

10. Pinus ponderosa/Muhlenbergia virescens Habitat Type

GEOGRAPHY. This habitat type occurs in the Chiricahua, Pinaleno, Galiuro, Pinal, and Santa Teresa mountains.

VEGETATION. Pinus ponderosa dominates the overstory. Occasional occurrence of Pinus strobiformis and Pseudotsuga menziesii in small size classes suggest the mesic character of this habitat type. Understory shrubs are varied in species and occurrence. Quercus gambelii, Q. rugosa, and Q. hypoleucoides are sometimes important (Figure 4) and occur along a gradient from mesic to xeric, respectively. The herb layer is dominated by Muhlenbergia virescens.

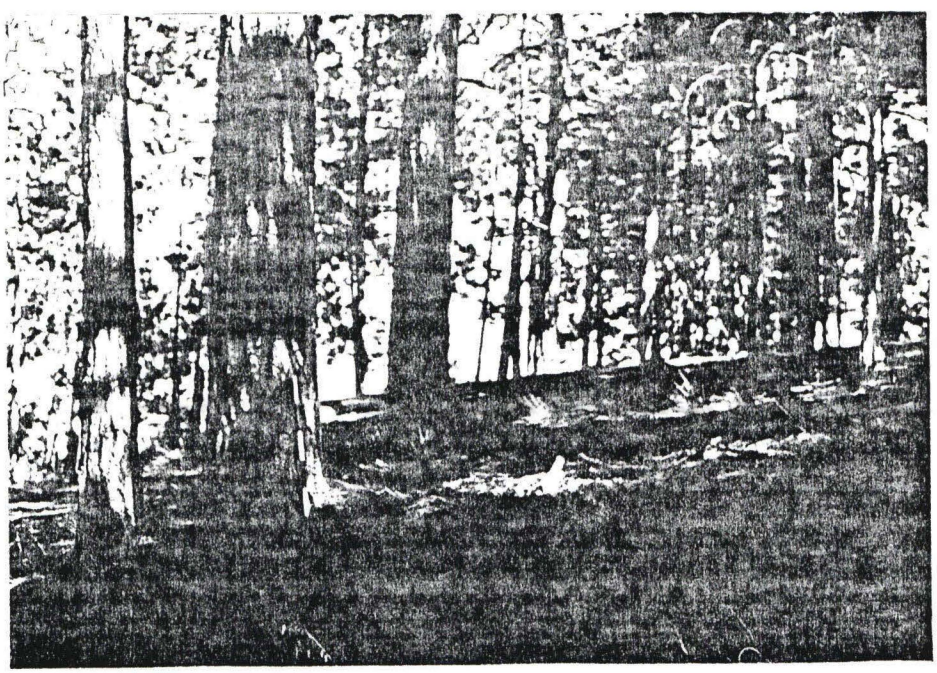

Figure 4. Pinus ponderosa/Muhlenbergia virescens habitat type, Chiricahua Mountains. Open stands with understories dominated by M. virescens are diagnostic of the type.

PHYSICAL SETTING. This type occurs at upper elevations in the Pinus ponderosa series from 7,350 to 9,300 feet (2,250 to 2,800 m) on lower and upper slopes of any aspect. Soils sampled were all Udic Ustochrepts.

ECOTONES. This type is closely-related to the Pseudotsuga menziesii /Muhlenbergia virescens habitat type and adjoins it at higher elevations. At similar elevations on generally shallower soils the Pinus ponderosa/Quercus gambelii habitat type occurs. The Pinus ponderosa/Quercus hypoleucoides habitat type generally occurs at lower elevations.

COMMENTS. This type was described previously in Arizona and New Mexico by Fitzhugh et al. (1983) and Hanks et al. (1983). Fire is important in maintaining this habitat type since it occurs at the moist end of the Pinus ponderosa series. Without periodic fire, Pseudotsuga menziesii would gain dominance in many stands (Moir and Ludwig 1979) since young Pseudotuga trees are less fire resistant and more shade tolerant than Pinus ponderosa. Further, fire exclusion may result in increased Pinus ponderosa and Pseudotsuga menziesii density, thereby resulting in decreased herb cover and diminish the often substantial grazing opportunities. Typically, livestock carrying capacity is high compared to most Pinus ponderosa habitat types (Hanks et al. 1983).

This type is generally productive for Pinus ponderosa timber owing to the mesic conditions, low competition with other woody plants, and the characteristically deep soils.

11. Pinus ponderosa/Quercus gambelii Habitat Type

GEOGRAPHY. This habitat type is found in the Chiricahua, Pinaleno, Galiuro, Pinal, and Santa Teresa mountains.

VEGETATION. Pinus ponderosa is the major climax dominant tree within this habitat type, but co-dominance with Pinus discolor is sometimes expressed in the overstory. Quercus gambelii trees and shrubs typify the understories; sometimes forming impenetrable thickets. Quercus hypoleucoides and Q. rugosa are other characteristic shrubs. Grasses occurring across this habitat type include Koeleria macrantha, Muhlenbergia virescens, M. longiligula, and Poa fendleriana. Artemisia ludoviciana is the most characteristic forb.

PHYSICAL SETTING. This type encompasses considerable topographic variation. The type occurs on westerly and northwesterly aspects. Elevations range from 6,000 to 8,700 feet (1,800 to 2,700 m). Slopes range from moderate to very steep, and soils from shallow to deep. Typical soils include Haploborolls and Eutroboralfs.

ECOTONES. As sites become wetter and/or cooler this type intergrades to the Abies concolor or the Pseudotsuga menziesii/Quercus gambelii habitat types. In contrast, warmer and drier sites exhibit the Pinus ponderosa/Quercus hypoleucoides or the P. ponderosa/Q. rugosa habitat types, or Pinus discolor-Juniperus deppeana woodland. Quercus typically dominates rocky sites while grasses dominate sites with deeper soils; this is consistant with Peet's (1981) observations.

COMMENTS. This type is of widespread importance throughout the southern Rocky Mountains and has previously been described for southern New Mexico and southeastern Arizona (Alexander et al. 1984; Fitzhugh et al.

1983). Hess and Wasser (1982) describe a related Pinus ponderosa/Quercus gambelii/Carex geyeri habitat type in central Colorado. Steele et al. (1981) describes a weakly-related Pinus ponderosa/Symphoricapus oreophilus habitat type in central Idaho. Hanks et al. (1983) describes a Pinus ponderosa/Bouteloua gracilis habitat type, Quercus gambelii phase in northern Arizona that is comparable to the type described here.

As is the case with all habitat types in the Pinus ponderosa series, fire is an important ecological factor in successions leading to this climax habitat type. Soon after catastrophic fire, Quercus gambelii forms dense thickets by extensive root sprouting. Competition is severe against the establishment of conifers during this persistent Quercus stage of succession (Hanks 1966). Certain areas where Quercus gambelii alone dominates stands with no hint of conifer establishment may in fact represent a Quercus gambelii climax series (Brown 1958).

Although livestock grazing is common in this type, dense oak thickets and a general lack of surface water make grazing difficult in many areas, and forage production is low. However, Quercus forms favorable browse and cover and receive moderate to heavy use by deer and other big game.

Release of Quercus gambelii following logging or crown fire present difficult Pinus ponderosa regeneration problems. Site quality is generally poor.

12. Pinus ponderosa/Quercus hypoleucoides Habitat Type

GEOGRAPHY. This habitat type was found in the Chiricahua, Pinaleno, and Galiuro mountains.

VEGETATION. Pinus ponderosa shares dominance in some stands with Pinus discolor and Juniperus deppeana. Quercus hypoleucoides is diagnostic in the understory, usually in association with Q. arizonica and occasionally Q. rugosa (Figure 5). Muhlenbergia longiligula occasionally dominates the typically sparse herb layer.

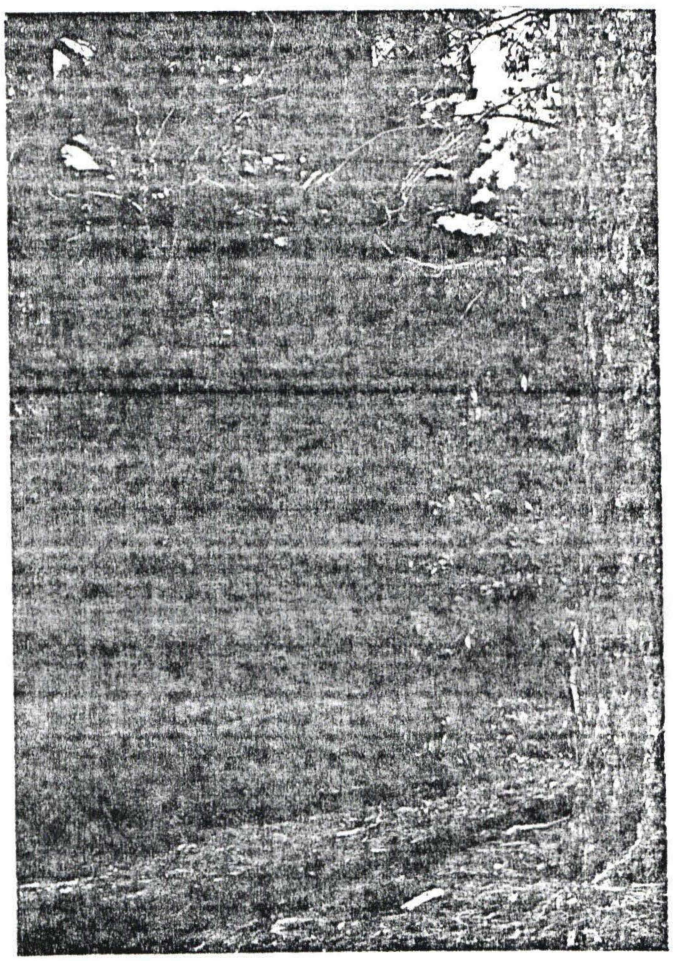

Figure 5. Pinus ponderosa/Quercus hypoleucoides habitat type, Pinaleno Mountains. Few species occur in the understory dominated by Q. hypoleucoides.

PHYSICAL SETTING. This type occurs in the mid-elevation range of Pinus ponderosa within the study area. Elevations vary from 5,700 to 8,000 feet (1,750 to 2,450 m). Slopes range from gentle to very steep and all aspects and landscape positions are encountered. Soils are predominantly Udic Haplustalfs and Udic Ustochrepts, and Lithic

Ustochrepts.

ECOTONES. As conditions become more mesic, Quercus rugosa or Q. gambelii dominate over Q. hypoleucoides, with a shift to Pinus ponderosa habitat types characterized by these more mesophytic oaks. In contrast, drier settings feature the Pinus ponderosa/Quercus arizonica habitat type.

COMMENTS. This habitat type has not previously been described but is evident in the Huachuca and Santa Catalina mountains outside the study area (Wallmo 1955; Whittaker and Niering 1965). It is the most widespread habitat type in the Pinus ponderosa series in the study area.

Wildlife cover is abundant but limited forage is produced. Xeric conditions and significant competion with Quercus hypoleucoides limit timber production.

13. Pinus ponderosa/Quercus arizonica Habitat Type

GEOGRAPHY. This type occurs on the most xeric sites occupied by Pinus ponderosa in the Chiricahua, Pinaleno, Galiuro, Santa Teresa, and Pinal mountains.

VEGETATION. Pinus ponderosa and Juniperus deppeana typify the coniferous overstory while mesic conifers such as Pinus strobiformis and Pseudotsuga menziesii are absent. The shrub layer is characterized by the xeric oaks, Quercus arizonica and Q. emoryi and the occasional dominance of Arctostaphylos pringlei. The herb layer varies widely in composition. Xeric grasses are well-represented in some stands. These include, Bouteloua gracilis and Muhlenbergia longiligula (Figure 6).

PHYSICAL SETTING. Elevations are at the lower extreme of Pinus

ponderosa growth and range from 5,000 to 7,200 feet (1,500 to 2,200 m). Aspects are predominantly westerly to northerly and slopes vary from flat benches and ridges to steep sideslopes. Soils are generally Udic Haplustalfs, and Lithic or Udic Ustochrepts.

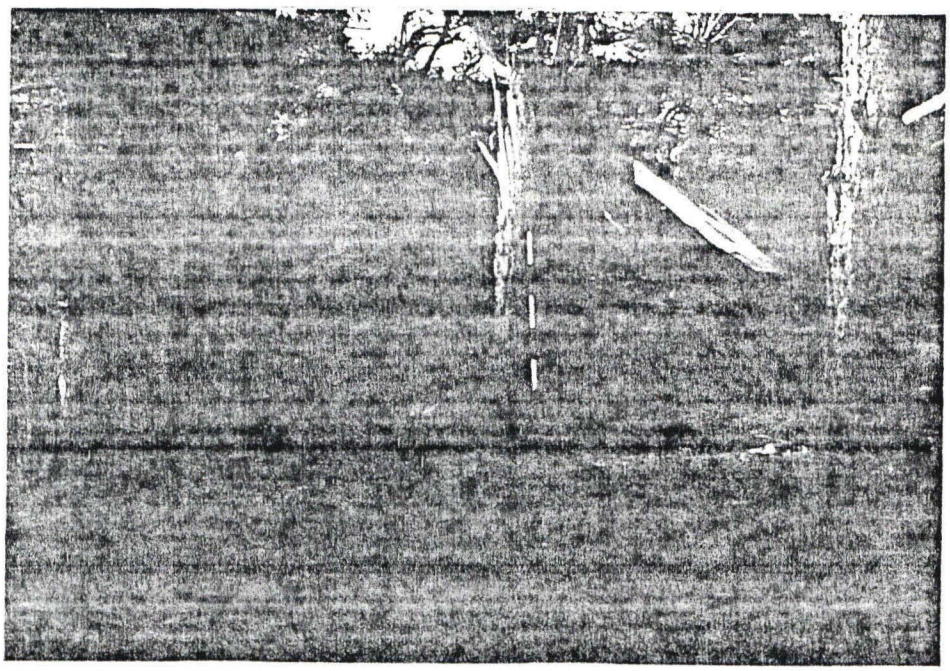

Figure 6. Pinus ponderosa/Quercus arizonica habitat type, Santa Teresa Mountains. Presence of the grasses Muhlenbergia longiligula and Bouteloua gracilis in association with Q. arizonica is suggestive of the xeric character of this habitat type.

ECOTONES. This type merges to the Pinus ponderosa/Quercus hypoleucoides habitat type at upper elevations and either the Pinus leiophylla/Q. hypoleucoides or the Pinus leiophylla/Q. arizonica habitat type at lower elevations. Pinus discolor-Juniperus deppeana woodland may adjoin this type on xeric sites.

COMMENTS. Hanks et al. (1983) describe a Pinus ponderosa/Arctostaphylos pungens community type near the Mogollon Rim that is similar to this habitat type. Both types are characterized by frequent fire and are transitional to woodlands and chaparrel. In fact, the general aspect of

many stands is that of a woodland rather than a forest (Whittaker and Niering 1965). In most case, the Pinus ponderosa trees are stunted from moisture stress.

14. Pinus leiophylla/Quercus hypoleucoides Habitat Type

GEOGRAPHY. This type occurs in the Peloncillo, Chiricahua, and Pinaleno mountains.

VEGETATION. Juniperus deppeana, Pinus discolor, and Pinus leiophylla characterize the coniferous overstory. The evergreen oaks, Quercus hypoleucoides and Q. arizonica and the grass, Muhlenbergia longiligula are characteristic in the understory.

PHYSICAL SETTING. Elevations range from 5,600 to 7,100 feet (1,700 to 2,200 m) and slopes are gentle to steep and of all exposures. Soils are generally Udic Ustochrepts.

ECOTONES. The Pinus leiophylla/Quercus hypoleucoides habitat type adjoins the Pinus ponderosa/Quercus hypoleucoides habitat type in more mesic settings, while xeric sites feature either the Pinus leiophylla/Quercus arizonica habitat type or Pinus discolor-Juniperus deppeana woodland.

COMMENTS. Of the seven series considered in the study area the only one occurring in the relatively hot and dry Peloncillo Mountains is the Pinus leiophylla series. The coniferous component of most stands of Pinus leiophylla are very open. In this type, as in all Pinus leiopylla habitat types, evergreen Quercus spp. are characteristic and are of high cover. The predominantly xeromorphic characteristics of the vegetaion is suggestive of the climatic rigors.

15. Pinus leiophylla/Quercus arizonica Habitat Type

GEOGRAPHY. This is the most widespread xeric forest habitat type of the study area and occurs in the Peloncillo, Chiricahua, Pinaleno, and Galiuro mountains.

VEGETATION. Pinus leiophylla presence is a key feature in the overstory, although often secondary in biomass relative to Juniperus deppeana and Pinus discolor. Diagnostic in the shrubby understory are Quercus emoryi and/or Arctostaphylos pungens (Figure 7). Quercus hypoleucoides, Q. arizonica, and Nolina microcarpa are also important shrubs. Xeric grasses are characteristic and include Andropogon cirratus, Aristida orcuttiana, Muhlenbergia emersleyi and M. longiligula.

PHYSICAL SETTING. This type occurs at the lowest elevations of all forest habitat types in the study area. Elevations range from 4,950 to 6,500 feet (1,500 to 1,950 m). Slopes vary from gentle to steep and are generally northerly or westerly. Diagnostic of this type is surface rock cover typically in excess of 15 percent, and lithic soils.

ECOTONES. This type adjoins either the Pinus leiophylla/Quercus hypoleucoides or the Pinus ponderosa/Quercus arizonica habitat type in mesic settings, and Pinus discolor-Juniperus deppeana woodlands in xeric settings.

COMMENTS. This habitat type is the most widespread of the Pinus leiophylla series and also the most floristically complex. Where soils are lithic, Arctostaphylos spp. are characteristic. The most xeric sites exhibit dominance of Quercus emoryi, while slightly more mesic areas feature Q. arizonica as the only dominant understory species. As

more data are collected in this habitat type recognition of more than one habitat type may be indicated.

Whittaker and Niering (1965) and Wallmo (1955) both provide data suggestive of this types occurrence in other mountains south of the Mogollon Rim, but outside the study area.

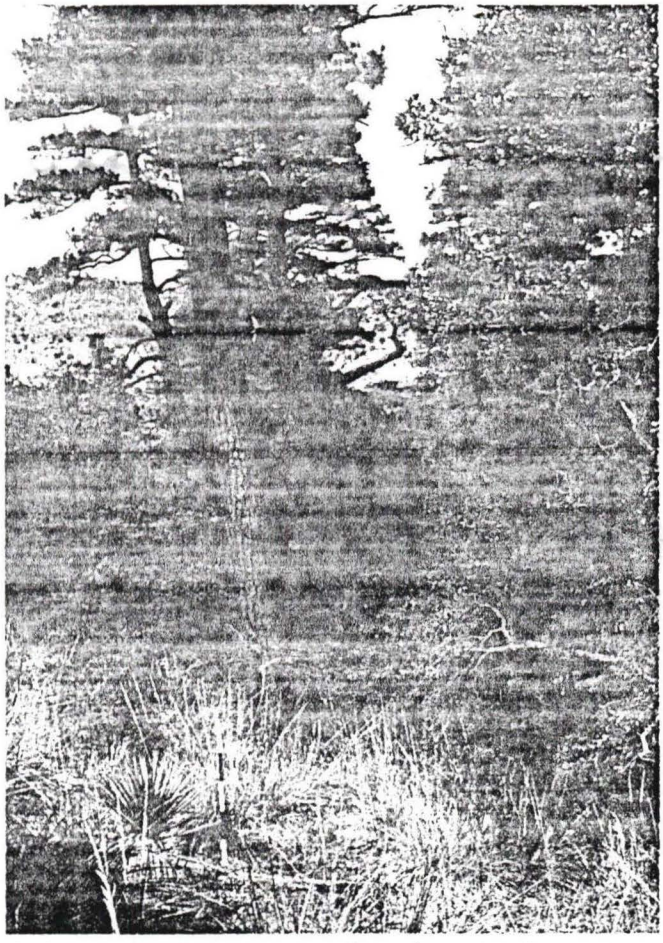

Figure 7. Pinus leiophylla/Quercus arizonica habitat type, Peloncillo Mountains. Q. arizonica and Q. emoryi share shrub dominance in this stand while the herb layer is dominated by Muhlenbergia longiligula, M. emersleyi, Andropogon cirratus, and Aristida orcuttiana. Adjoining plant communities are Pinus discolor-Juniperus deppeana woodlands and chaparrel.

16. Pinus leiophylla/Piptochaetium fimbriatum Habitat Type

GEOGRAPHY. This type is restricted to streamsides and streamside benches in the Chiricahua, Peloncillo, and Pinaleno mountains.

VEGETATION. Overstories are characterized by Pinus leiophylla, Juniperus deppeana, J. erythrocarpa, and occationally Cupressus arizonica. Pinus engelmannii is present in some stands. Broadleaf trees sometimes present include the riparian species Juglans major, Fraxinus pennsylvanica ssp. velutina, Platanus wrightii, and Prunus serotina. Large specimens of Quercus arizonica, Q. emoryi, and Q. hypoleucoides occur in this type. The herb layer is diverse and high in cover. Diagnostic is the grass, Piptochaetium fimbriatum (Figure 8).

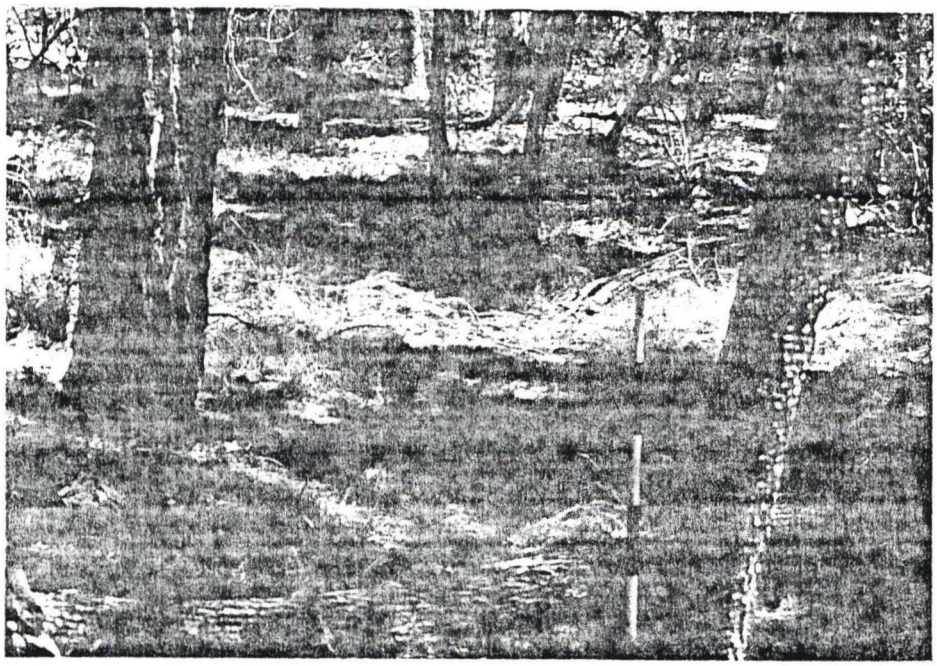

Figure 8. Pinus leiophylla/Piptochaetium fimbriatum habitat type, Chiricahua Mountains. Flat topography and dominance of P. fimbriatum are characteristic of this type.

PHYSICAL SETTING. This type is restricted to flat or gently sloping streamsides and benches at elevations from 5,000 to 6,000 feet (1,500 to 1,800 m). Soils are generally fluventic.

ECOTONES. Generally this type is adjoined either by the Pinus ponderosa/Quercus arizonica habitat type at higher elevations or by Pinus discolor-Juniperus deppeana woodland at lower elevations or on more

xeric sites.

COMMENTS. This basically riparian habitat type has not been described previously. It is generally dominated by broadleaved trees with scattered Pinus leiophylla present. Wildlife use is high owing to the diverse vegetation strata, generally close proximity to water, and abundant forage.

Other Habitat Types

Other forest habitat types are found south of the Mogollon Rim that either have limited geographical distributions or are widespread but undersampled in this study.

The Abies lasiocarpa/Vaccinium myrtillus habitat type is found at mesic high elevations in the Pinaleno Mountains. This type is more widespread north of the study area (DeVelice et al. 1983; Fitzhugh et al. 1983). Picea engelmannii is co-dominant with Abies. Vaccinium myrtillus is well-represented and is the dominant feature of the understory.

The Picea engelmannii/Carex foenea habitat type is found on upper slopes and ridges in the Pinaleno Mountains at about 10,200 feet(3,100 m). This type was first described by Moir and Ludwig (1979). Abies spp., Pseudotsuga menziesii, and Populus tremuloides are absent or minor. Carex foenea is common to abundant and has highest cover in openings. Regeneration is difficult in this type owing to competition with Carex foenea and grasses and the relatively dry (south slope) conditions.

The Abies concolor/Carex foenea habitat type is restricted to mesic mid elevations in the Pinaleno Mountains (Moir and Ludwig 1979). Abies

concolor, Pseudotsuga menziesii, and Pinus strobiformis are characteristic overstory dominants. Characteristic understory species include Carex foenea (to 80 percent cover), Bromopsis ciliata, Poa pratensis, Geranium richardsonii, Pteridium aquilinum, and Senecio wootoni. The type is closely related to the Abies concolor/Acer glabrum habitat type and adjoins it on rockier sites.

The Pseudotsuga menziesii/Quercus rugosa habitat type has not been previously described. It was sampled only once in the Pinaleno Mountains at 8,700 feet (2,700 m) but may possibly occur elsewhere in southeastern Arizona in mesic environments intermediate between the Pseudotsuga menziesii/Quercus gambelii and the Pseudotsuga menziesii/Q. hypoleucoides habitat types. Overstories exhibit Pseudotsuga menziesii, Pinus strobiformis, and P. ponderosa, while Quercus rugosa dominates the understory. The soil was described as a Lithic Udorthent.

The Pseudotsuga menziesii/Quercus arizonica habitat type shares strong affinities to the P. menziesii/Q. hypoleucoides habitat type. However, Q. hypoleucoides is secondary (or absent) relative to Q. arizonica in this type and settings are typically more xeric in the P. menziesii/Q. arizonica habitat type. Pseudotsuga menziesii and occasionally Pinus ponderosa dominate the overstory. The single plot occurred in the the Sierra Ancha at 6,800 feet (2,100 m) elevation.

The Pseudotsuga menziesii/Acer gradidentatum habitat type is at lower elevations than the more widespread Abies concolor/Acer gradidentatum habitat type. In this study, the type was sampled only on streamside benches and protected coves in the Galiuro Mountains, however, the type probably occurs elsewhere in southeastern Arizona.

The Pinus ponderosa/Quercus rugosa habitat type was sampled at three locations in the Pinaleno Mountains. This is a mesic habitat type as evidenced by the presence of Pinus strobiformis and Pseudotsuga menziesii in some stands, however, Pinus ponderosa is clearly the climax dominant. Quercus rugosa dominance in the understory is diagnostic of the type. Elevations vary from 8,300 to 8,800 feet (2,550 to 2,700 m). This type adjoins the Pinus ponderosa or Pseudotsuga menziesii/Quercus gambelii habitat type on more mesic sites and the Pinus ponderosa/Quercus hypoleucoides habitat type on more xeric sites.

The Pinus ponderosa/Bouteloua gracilis habitat type was sampled only once in the Santa Teresa Mountains. This type is minor in the forests south of the Mogollon Rim but is of major importance to the north and east (DeVelice et al. 1983; Fitzhugh et al. 1983; Hanks et. al. 1983). The single plot occurred at 7,150 feet (2,200 m) on a northwest-facing lower slope. Pinus discolor was important in the overstory and Muhlenbergia montana shared understory dominance with Bouteloua gracilis.

Within the study area, Pinus engelmannii occurs only in the Chiricahua Mountains. Sites are more xeric than those occupied by Pinus ponderosa but less xeric than sites in the P. leiophylla series. Three Pinus engelmannii habitat types are recognized: P. engelmannii /Mulenbergia longiligula, P. engelmannii/Q. hypoleucoides, and P. engelmannii/Q. arizonica. The P. engelmannii/Q. hypoleucoides habitat type is the most common of the three types. It occurs at elevations ranging from 6,200 to 7,100 feet (1,900 to 2,150 m) on soils that are predominantly Udic Ustochrepts. The P. engelmannii/Muhlenbergia longiligula habitat type is the most mesic of the three P. engelmannii habitat types. The presence of Q. gambelii in this type suggests affi-

nities to the P. ponderosa/Q. gambelii habitat type, however, abundant cover of Muhlenbergia longiligula indicates the distinctiveness and relatively xeric character (in comparison to the P. ponderosa/Q. gambelii habitat type) of this habitat type. Elevation of the single P. engelmannii/Muhlenbergia longiligula habitat type plot sampled was 6,900 feet (2,100 m) on a north-easterly upper slope. The most xeric P. engelmannii habitat type is the P. engelmannii/Q. arizonica habitat type. The single plot sampled in the habitat type was on a south slope at 6,300 feet (1,900 m).

The Pinus leiophylla/Quercus toumeyi habitat type represents the most xeric of all forest habitat types south of the Mogollon Rim. The single plot occurred in the Chiricahua Mountains on a south-west facing ridge at 6,100 feet (1,850 m) on a Lithic Ustorthent soil. Arctostaphylos pungens and Q. toumeyi characterize the shrubby understory.

SUMMARY AND CONCLUSIONS

This study identifies and describes forest habitat types in the mountains south of the Mogollon Rim in Arizona and New Mexico. The classification is based on 123 sample plots. Forestlands included in the study were those that support any one, or a combination, of the following coniferous tree species: Abies lasiocarpa, Picea engelmannii, Abies concolor, Pseudotsuga menziesii, Pinus ponderosa, Pinus engelmannii, and Pinus leiophylla.

Since natural vegetation integrates all impinging environmental factors, a given habitat type encompasses a relatively narrow range of environmental variation (Daubenmire 1976). Thus, the classification presented here provides a means of delimiting land units of relatively uniform biotic potential and management opportunities. Additionally, the classification provides a common system for improving communication among diverse investigators, and is useful in improving sampling design and experimental layout.

Each habitat type is identified by its characteristic plant association. Use of climax plant associations does not imply that we have an abundance of climax vegetation in the present landscape (Pfister et al. 1977; Steele et al. 1981). Most current vegetation reflects some form of disturbance and various stages of succession towards climax. Indeed, in areas where timber harvesting and overgrazing have been pervasive, climax vegetation structure is essentially absent and habitat type identification requires extrapolation from adjacent undisturbed stands (Arno 1982).

The classification produced two habitat types in the Abies lasiocarpa series, two habitat types in the Picea engelmannii series,

five habitat types in the Abies concolor series, six habitat types in the Pseudotsuga menziesii series, six habitat types in the Pinus ponderosa series, three habitat types in the Pinus engelmannii series, and four habitat types in the Pinus leiophylla series.

Successional trends vary widely among habitat types (Appendix Table A-5). Succession to Abies lasiocarpa and Picea engelmannii is direct in the highest (coldest) elevations, while lower elevations in the Abies lasiocarpa and Picea engelmanii series may exhibit any, or a combination, of Populus tremuloides, Abies concolor, and Pseudotsuga menziesii as major seral trees. Succession in the mixed conifer zone includes Populus tremuloides, Pinus strobiformis, Pinus ponderosa, Quercus gambelii, and Q. hypoleucoides as major seral trees. Quercus gambelii, Q. hypoleucoides, and Q. arizonica are the principal seral trees of the Pinus ponderosa, Pinus engelmannii, and Pinus leiophylla series. Moister habitat types in the Pinus ponderosa and Pinus engelmannii series may be regarded as fire climaxes since in the absence of fire the more shade-tolerant (but less fire-resistant) Abies concolor and Pseudotsuga menziesii may eventually dominate.

Considerable soil variation occurs among the habitat types described. Soil orders sampled in the study included Alfisols, Entisols, Inceptisols, and Mollisols. Soil moisture-temperature regimes varied from udic-cryic in the Abies lasiocarpa series to ustic-mesic in the Pinus leiophylla series.

This study does not purport to describe all the forest habitat types south of the Mogollon Rim. Refinement of the classification will take place following field evaluation of the keys and descriptions.

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APPENDIX

Table A-1. List of species found in forest stands south of the Mogollon Rim in Arizona and New Mexico.

LIFE FORM/SPECIES/SIZE CLASS	CODE	SYNONOMY
- - - - T R E E S - - - -		
ABIES CONCOLOR (YNG. REGEN.)	ABCO1	
ABIES CONCOLOR (ADV. REGEN.)	ABCO2	
ABIES CONCOLOR (MATURE)	ABCO3	
ABIES LASIOCARPA (YNG. REGEN.)	ABLA1	
ABIES LASIOCARPA (ADV. REGEN.)	ABLA2	
ABIES LASIOCARPA (MATURE)	ABLA3	
ACER GLABRUM (YNG. REGEN.)	ACGL1	
ACER GLABRUM (ADV. REGEN.)	ACGL2	
ACER GLABRUM (MATURE)	ACGL3	
ACER GRANDIDENTATUM (Y.REGEN.)	ACGR1	
ACER GRANDIDENTATUM (A.REGEN.)	ACGR2	
ACER GRANDIDENTATUM (MATURE)	ACGR3	
ARBUTUS ARIZONICA (Y. REGEN.)	ARAR1	
ARBUTUS ARIZONICA (A · REGEN.)	ARAR2	
ARBUTUS ARIZONICA (MATURE)	ARAR3	
CUPRESSUS ARIZONICA (Y. REG.)	CUAR1	
CUPRESSUS ARIZONICA (A. REG.)	CUAR2	
CUPRESSUS ARIZONICA (MATURE)	CUAR3	
FRAXINUS PENNSYLVANICA (Y.REG)	FRPE1	F. VELUTINA
FRAXINUS PENNSYLVANICA (A.REG)	FRPE2	F. VELUTINA
FRAXINUS PENNSYLVANICA (MATUR)	FRPE3	F. VELUTINA
JUGLANS MAJOR (YNG. REGEN.)	JUMA1	
JUGLANS MAJOR (ADV.REGEN.)	JUMA2	
JUGLANS MAJOR (MATURE)	JUMA3	
JUNIPERUS DEPPEANA (Y. REGEN.)	JUDE1	
JUNIPERUS DEPPEANA (A. REGEN.)	JUDE2	
JUNIPERUS DEPPEANA (MATURE)	JUDE3	
JUNIPERUS ERYTHROCARPA (Y.RG.)	JUER1	J. MONOSPERMA
JUNIPERUS ERYTHROCARPA (A.RG.)	JUER2	J. MONOSPERMA
JUNIPERUS ERYTHROCARPA (MAT.)	JUER3	J. MONOSPERMA
PICEA ENGELMANNII (YNG. REGEN)	PIEN1	
PICEA ENGELMANNII (ADV. REGEN)	PIEN2	
PICEA ENGELMANNII (MATURE)	PIEN3	
PINUS DISCOLOR (YNG. REGEN.)	PIDI1	P. CEMBROIDES
PINUS DISCOLOR (ADV. REGEN.)	PIDI2	P. CEMBROIDES
PINUS DISCOLOR (MATURE)	PIDI3	P. CEMBROIDES
PINUS EDULIS (YNG. REGEN.)	PIED1	
PINUS EDULIS (ADV. REGEN.)	PIED2	
PINUS EDULIS (MATURE)	PIED3	
PINUS ENGELMANNII (YNG. REGEN)	PINEN1	P. LATIFOLIA
PINUS ENGELMANNII (ADV. REGEN)	PINEN2	P. LATIFOLIA
PINUS ENGELMANNII (MATURE)	PINEN3	P. LATIFOLIA
PINUS LEIOPHYLLA (YNG. REGEN.)	PILE1	P. CHIHUAHUANA
PINUS LEIOPHYLLA (ADV. REGEN.)	PILE2	P. CHIHUAHUANA
PINUS LEIOPHYLLA (MATURE)	PILE3	P. CHIHUAHUANA
PINUS MONOPHYLLA (YNG. REG.)	PIMO1	
PINUS MONOPHYLLA (ADV. REG.)	PIMO2	
PINUS MONOPHYLLA (MATURE)	PIMO3	

Table A-1. (continued)

LIFE FORM/SPECIES/SIZE CLASS	CODE	SYNONOMY
PINUS PONDEROSA (YNG. REGEN.)	PIPO1	
PINUS PONDEROSA (ADV. REGEN.)	PIPO2	
PINUS PONDEROSA (MATURE)	PIPO3	
PINUS STROBIFORMIS (YNG. REG.)	PIST1	P. REFLEXA
PINUS STROBIFORMIS (ADV. REG.)	PIST2	P. REFLEXA
PINUS STROBIFORMIS (MATURE)	PIST3	P. REFLEXA
PLATANUS WRIGHTII (YNG.REGEN.)	PLWR1	
PLATANUS WRIGHTII (ADV.REGEN.)	PLWR2	
PLATANUS WRIGHTII (MATURE)	PLWR3	
POPULUS TREMULOIDES (Y. REG.)	POTR1	
POPULUS TREMULOIDES (A. REG.)	POTR2	
POPULUS TREMULOIDES (MATURE)	POTR3	
PRUNUS SEROTINA (YNG. REG.)	PRSE1	SSP. VIRENS (P. VIRENS)
PRUNUS SEROTINA (ADV. REG.)	PRSE2	SSP. VIRENS (P. VIRENS)
PRUNUS SEROTINA (MATURE)	PRSE3	SSP. VIRENS (P. VIRENS)
PSEUDOTSUGA MENZIESII (Y. REG)	PSME1	
PSEUDOTSUGA MENZIESII (A. REG)	PSME2	
PSEUDOTSUGA MENZIESII (MATURE)	PSME3	
QUERCUS ARIZONICA (Y. REGEN.)	QUAR1	
QUERCUS ARIZONICA (A. REGEN.)	QUAR2	
QUERCUS ARIZONICA (MATURE)	QUAR3	
QUERCUS CHRYSOLEPIS (Y. REG.)	QUCH1	Q. WILCOXII
QUERCUS CHRYSOLEPIS (A. REG.)	QUCH2	Q. WILCOXII
QUERCUS CHRYSOLEPIS (MATURE)	QUCH3	Q. WILCOXII
QUERCUS EMORYI (Y. REGEN.)	QUEM1	
QUERCUS EMORYI (A. REGEN.)	QUEM2	
QUERCUS EMORYI (MATURE)	QUEM3	
QUERCUS GAMBELII (Y. REGEN.)	QUGA1	
QUERCUS GAMBELII (A. REGEN.)	QUGA2	
QUERCUS GAMBELII (MATURE)	QUGA3	
QUERCUS GRISEA (YNG. REG.)	QUGR1	
QUERCUS GRISEA (ADV. REG.)	QUGR2	
QUERCUS GRISEA (MATURE)	QUGR3	
QUERCUS HYPOLEUCOIDES (Y.REG.)	QUHY1	
QUERCUS HYPOLEUCOIDES (A.REG.)	QUHY2	
QUERCUS HYPOLEUCOIDES (MATURE)	QUHY3	
QUERCUS RUGOSA (Y. REGEN.)	QURU1	Q. RETICULATA
QUERCUS RUGOSA (A. REGEN.)	QURU2	Q. RETICULATA
QUERCUS RUGOSA (MATURE)	QURU3	Q. RETICULATA
SALIX SCOULERIANA (Y. REG.)	SASC1	
SALIX SCOULERIANA (A. REG.)	SASC2	
SALIX SCOULERIANA (MATURE)	SASC3	
- - - - S H R U B S - - - -		
ACER GLABRUM	ACGL	
ACER NEGUNDO	ACNE	
ACER GRANDIDENTATUM	ACGR	
AGAVE SPP.	AGAVE	
AGAVE PALMERI	AGPAL	
AGAVE PARRYI	AGPAR	

Table A-1. (continued)

LIFE FORM/SPECIES/SIZE CLASS	CODE	SYNONOMY
AMORPHA FRUTICOSA	AMFR	
ARBUTUS ARIZONICA	ARAR	
ARCTOSTAPHYLOS PRINGLEI	ARPR	
ARCTOSTAPHYLOS PUNGENS	ARPU	
BACCHARIS THESIOIDES	BATH	
BOUVADIA GLABERRIMA	BOGL	
BRICKELLIA CALIFORNICA	BRCA	
CHARPOCHAETE BIGELOVII	CHBI	
CEANOTHUS FENDLERI	CEFE	
CEANOTHUS GREGGII	CEGR	
CERCOCARPUS MONTANUS	CEMO	
CLEMATIS COLUMBIANA	CLCO	C. PSEUDOALPINA
DASYLIRION WHEELERI	DAWH	
DALEA WISLIZENI	DAWI	
ECHINOCEREUS SPP.	ECHINO	
FALLUGIA PARADOXA	FAPA	
FENDLERA RUPICOLA	FERU	
FRAXINUS SPP.	FRAXIN	
FRAXINUS PENNSYLVANICA	FRPE	
GARRYA WRIGHTII	GAWR	
GUTIRREZIA LUCIDA	GULU	
HOLODISCUS DUMOSUS	HODU	
JUGLANS MAJOR	JUMA	
JUNIPERUS DEPPEANA (SHRUBS)	JUDE	
LONICERA SPP.	LONICE	
LONICERA ALBIFLORA	LOAL	
LONICERA ARIZONICA	LOAR	
LONICERA UTAHENSIS	LOUT	
MAHONIA REPENS	MARE	BERBERIS REPENS
MIMOSA BIUNCIFERA	MIBI	
MIMOSA GRAHAMII	MIGR	
NOLINA MICROCARPA	NOMI	
OPUNTIA SPP.	OPUNTI	
OPUNTIA ENGELMANNII	OPEN	
OPUNTIA PLUMBEA	OPPL	
OPUNTIA SPINOSIOR	OPSP	
PACHYSTIMA MYRSINITES	PAMY	
PHILADELPHUS MICROPHYLLUS	PHMI	
PHYSOCARPUS MONOGYNUS	PHMO	
PLATANUS WRIGHTII	PLWR	
POPULUS TREMULOIDES	POTR	
PRUNUS SPP.	PRUNUS	
PRUNUS SEROTINA SSP. VIRENS	PRSE	P. VIRENS
PRUNUS VIRGINIANA	PRVIG	
PTELEA ANGUSTIFOLIA	PTAN	
QUERCUS ARIZONICA	QUAR	
QUERCUS CHRYSOLEPIS	QUCH	Q. WILCOXII
QUERCUS EMORYI	QUEM	
QUERCUS GAMBELII	QUGA	
QUERCUS GRISEA	QUGR	

Table A-1. (continued)

LIFE FORM/SPECIES/SIZE CLASS	CODE	SYNONOMY
QUERCUS HYPOLEUCOIDES	QUHY	
QUERCUS RUGOSA	QURU	Q. RETICULATA
QUERCUS TOUMEYI	QUTO	
QUERCUS TURBINELLA	QUTU	
RHAMNUS BETULAEFOLIA	RHBE	
RHAMNUS CALIFORNICA	RHCA	
RHAMNUS CROCEA	RHCR	
RHUS AROMATICA	RHAR	R. TRILOBATA
RHUS CHORIOPHYLLA	RHCH	
RIBES CEREUM	RICE	
RIBES MONTIGENUM	RIMO	
ROBINIA NEOMEXICANA	RONE	
RUBUS IDAEUS VAR. STRIGOSUS	RUID	R. STRIGOSUS
RUBUS NEOMEXICANUS	RUNE	
RUBUS STRIGOSUS	RUST	
SALIX SPP.	SALIX	
SALIX SCOULERIANA	SASC	
SELLOA GLUTINOSA	SEGL	
SYMPHORICARPOS OREOPHILUS	SYOR	
TOXICODENDRON RYDBERGII	TORY	T. (RHUS) RADICANS
VACCINIUM MYRTILLUS	VAMY	V. OREOPHILUM
VITIS ARIZONICA	VIAR	
YUCCA BACCATA	YUBA	
YUCCA SCHOTTII	YUSC	
- - G R A M I N O I D S - -		
AGROPYRON ARIZONICUM	AGAR	
AGROPYRON SUBSECUNDUM	AGSU	
ANDROPOGON CIRRATUS	ANCI	
ARISTIDA ORCUTTIANA	AROR	
BLEPHARONEURON TRICHOLEPIS	BLTR	
BOUTELOUA CURTIPENDULA	BOCU	
BOUTELOUA GRACILIS	BOGR	
BOUTELOUA HIRSUTA	BOHI	
BROMUS SPP.	BROMUS	
BROMOPSIS CILIATA	BRCI	BROMUS (RICHARDSONI) CILIATUS
BROMOPSIS PORTERI	BRPO	BROMUS ANOMALOUS
CAREX SPP.	CAREX	
CAREX BELLA	CABE	
CAREX BREVIPES	CABR	
CAREX FOENEA	CAFO	
CAREX GEOPHILA	CAGE	
CAREX HOODII	CAHO	
CAREX LEUCODONTA	CALE	
CAREX ROSSII	CARO	
CYPERUS SPP.	CYPERU	
CYPERUS RUSBYI	CYRU	
DACTYLIS GLOMERATA	DAGL	
ERAGROSTIS INTERMEDIA	ERIN	
FESTUCA ARIZONICA	FEAR	

Table A-1. (continued)

LIFE FORM/SPECIES/SIZE CLASS	CODE	SYNONOMY
FESTUCA SORORIA	FESO	
KOELERIA MACRANTHA	KOMA	K. CRISTATA
LUZULA PARVIFLORA	LUPA	
LYCURES PHLEOIDES	LYPH	
MUHLENBERGIA EMERSLEYI	MUEM	
MUHLENBERGIA GLAUCA	MUGL	
MUHLENBERGIA LONGILIGULA	MULO	
MUHLENBERGIA MINUTISSIMA	MUMI	
MUHLENBERGIA MONTANA	MUMO	
MUHLENBERGIA VIRESCENS	MUVI	
PANICUM BULBOSUM	PABU	
PIPTOCHAETIUM FIMBRIATUM	PIFI	
POA FENDLERIANA	POFE	
POA PRATENSIS	POPR	
SETARIA GRISEBACHII	SEGR	
SITANION HYSTRIX	SIHY	S. LONGIFOLIUM
STIPA PRINGLEI	STPR	
- - - - F O R B S - - - -		
ACHILLEA MILLEFOLIUM	ACMI	SSP. LANULOSA (A. LANULOSA)
AGASTACHE SP.	AGASTA	
ALLIUM CERNUUM	ALCE	
ALLIUM KUNTHII	ALKU	
AMARANTHUS SPP.	AMARAN	
ANTENNARIA SPP.	ANTENN	
ANTENNARIA ARIDA	ANAR	
ANTENNARIA NEGLECTA	ANNE	A. MARGINATA
APOCYNUM ANDROSAEMIFOLIUM	APAN	
AQUILEGIA CHRYSANTHA	AQCH	
AQUILEGIA ELEGANTULA	AQEL	
ARABIS SPP.	ARABIS	
ARABIS TRICORNUTA	ARTR	
ARENARIA SPP.	ARENAR	
ARENARIA LANUGINOSA	ARLA	A. (CONFUSA) SAXOSA
ARTEMISIA CARRUTHII	ARCA	
ARTEMISIA DRACUNCULOIDES	ARDR	
ARTEMISIA FRANSERIODES	ARFR	
ARTEMISIA LUDOVICIANA	ARLU	
ASCLEPIAS TUBEROSA	ASTU	
ASTRAGALUS COBRENSIS	ASCO	
BAHIA DISSECTA	BADI	
BIDENS SPP.	BIDENS	
BIDENS HERTEROSPERMA	BIHE	
BIDENS LEMMONII	BILE	
BOERHAAVIA SPP.	BOERHA	
BRICKELLIA SPP.	BRICKE	
BRICKELLIA BETONIEAEFOLIA	BRBE	
BRICKELLIA GRANDIFLORA	BRGR	
BRICKELLIA LEMMONI	BRLE	
CACALIA DECOMPOSITA	CADE	

Table A-1. (continued)

LIFE FORM/SPECIES/SIZE CLASS	CODE	SYNONOMY
CALLIANDRA HUMILIS	CAHU	
CALLIANDRA RETICULATA	CARE	
CALLIANDRA SCHOTTII	CASC	
CAMPANULA ROTUNDIFOLIA	CAROT	
CHEILANTHES FENDLERI	CHFE	
CHENOPODIUM SPP.	CHENOD	
CHENOPODIUM FREMONTII	CHFR	
CHENOPODIUM INCISUM	CHIN	
CHIMIPHILA UMBELLATA	CHUM	
CIRSIUM SPP.	CIRSIU	
CIRSIUM ARIZONICUM	CIAR	
CIRSIUM WHEELERI	CIWH	
COLOGANIA LONGIFOLIA	COLO	
COLOGANIA PULCHELLA	COPU	
COMANDRA UMBELLATA S. PALLIDA	COUM	C. PALLIDA
COMMELINA DIANTHIFOLIA	CODI	
CONOPHOLIS MEXICANA	COME	
CORALLORHIZA SPP.	CORALL	
CORALLORHIZA STRIATA	COSTR	
COSMOS SPP.	COSMOS	
CRUCIFERAE SPP.	CRUCIF	
CYSTOPTERIS FRAGILIS	CYFR	
DESMODIUM SP.	DESMOD	
DESMODIUM ARIZONICUM	DEAR	
DESMODIUM BATOCAULON	DEBA	
DESMODIUM GRAHAMI	DEGR	
DESMODIUM ROSEI	DERO	
DRABA SP.	DRABA	
DRYMARIA TENELLA	DRTE	
ERIGERON SPP.	ERIGER	
ERIGERON EXIMIUS	EREX	E. SUPERBUS
ERIGERON FLAGELLARIS	ERFL	
ERIGERON FORMOSISSIMUS	ERFO	
ERIGERON NEOMEXICANUS	ERNE	
ERIGERON RUSBYI	ERRU	
ERIGERON SPECIOSUS	ERSP	
ERIGERON SUBTRINERVIS	ERSUB	
ERIOGONUM SPP.	ERIOGO	
ERIOGONUM ALATUM	ERAL	
ERIOGONUM PHARNACEOIDES	ERPH	
ERIOGONUM WRIGHTII	ERWR	
ERYSIMUM CAPITATUM	ERCA	
EUPATORIUM HERBACEUM	EUHE	
EUPHORBIA SPP.	EUPHOR	
EUPHORBIA BRACHYCERA	EUBR	
EUPHORBIA CHAMAESULA	EUCH	
EUPHORBIA REVOLUTA	EURE	
FRAGARIA AMERICANA	FRAM	F. VESCA VAR. BRACTEATA
FRAGARIA OVALIS	FROV	F. VIRGINIANA VAR. GLAUCA
FRASERA SPECIOSA	FRSP	SWERTIA RADIATA

Table A-1. (continued)

LIFE FORM/SPECIES/SIZE CLASS	CODE	SYNONOMY
GALACTIA WRIGHTII	GALWR	
GALIUM SPP.	GALIUM	
GALIUM ASPERRINUM	GAAS	
GALIUM BOREALE	GABO	
GALIUM FENDLERI	GAFE	
GALIUM MICROPHYLLUM	GAMI	
GALIUM TINCTORIUM	GATI	
GALIUM TRIFLORUM	GATR	
GENTIANA BIGELOVII	GEBI	
GENTIANELLA MICROCALYX	GEMI	GENTIANA MICROCALYX
GERANIUM SPP.	GERANI	
GERANIUM CAESPITOSUM	GECA	G. FREMONTII
GERANIUM RICHARDSONII	GERI	
GILIA AGGREGATA	GIAG	
GILIA MACOMBII	GIMA	
GILIA MULTIFLORA	GIMU	
GNAPHALIUM CHILENSE	GNCH	
GNAPHALIUM MACOUNII	GNMA	
GNAPHALIUM PRINGLEI	GNPR	
GNAPHALIUM WRIGHTII	GNWR	
GOODYERA OBLONGIFOLIA	GOOB	
GUTIERREZIA GLUTINOSA	GUGL	
HEDEOMA SPP.	HEDEOM	
HEDEOMA DENTATUM	HEDE	
HEDEOMA HYSSOPIFOLIUM	HEHY	
HEDEOMA OBLONGIFOLIUM	HEOB	
HEDYOTIS PYGMAEA	HEPY	HOUSTONIA WRIGHTII
HELENIUM HOOPESII	HEHO	
HELIOPSIS PARVIFOLIA	HEPA	
HETEROTHECA FULCRATA	HEFU	CHRYSOPSIS (FULCRATA) VILLOSA
HEUCHERA PARVIFOLIA	HEUPA	
HEUCHERA RUBESCENS	HERU	
HEUCHERA VERSICOLOR	HEVE	
HIERACIUM CARNEUM	HICA	
HIERACIUM FENDLERI	HIFE	
IPOMOEA COCCINEA	IPCO	
KUHNIA ROSMARINIFOLIA	KURO	
LATHYRUS SPP.	LATHYR	
LATHYRUS ARIZONICUS	LAAR	
LATHYRUS GRAMINIFOLIUS	LAGR	
LIGULARIA BIGELOVII	LIBI	SENECIO BIGELOVII
LIGUSTICUM PORTERI	LIPO	
LINUM NEOMEXICANUM	LINE	
LITHOSPERUM MULTIFLORUM	LIMU	
LOTUS WRIGHTII	LOWR	
LUPINUS SPP.	LUPINU	
LUPINUS BLUMERI	LUBL	
MALAXIS SOULEI	MASO	
MERTENSIA FRANCISCANA	MEFR	
MONARDA MENTHAFOLIA	MOME	

Table A-1. (continued)

LIFE FORM/SPECIES/SIZE CLASS	CODE	SYNONOMY
MONARDA PECTINATA	MOPE	
MONESES UNIFLORA	MOUN	
MONOTROPA LATISQUAMA	MOLA	
OENOTHERA SPP.	OENOTH	
OREOCHRYSUM PARRYI	ORPA	HAPLOPAPPUS PARRYI
ORTHILIA SECUNDA	ORSE	PYROLA (RAMISCHIA) SECUNDA
OSMORHIZA CHILENSIS	OSCH	
OXALIS SPP.	OXALIS	
OXALIS DECAPHYLLA	OXDE	
OXALIS METCALFEI	OXME	
OXYBAPHUS SPP.	OXYBAP	
OXYBAPHUS COMATUS	OXCO	
OXYTROPUS LAMBERTII	OXLA	
PELLEAE ATROPURPUREA	PEAT	
PELLAEA WRIGHTIANA	PEWR	
PENNELIA MICRANTHA	PEMI	
PENSTEMOM BARBATUS	PEBA	
PENSTEMOM PSEUDOSPECTABILIS	PEPS	
PHACELIA HETEROPHYLLA	PHHE	
PHASEOLUS SPP.	PHASEO	
PHASEOLUS ACUTIFOLIUS	PHAC	
PHASEOLUS ANGUSTISSIMUS	PHAN	
PHASEOLUS PARVULUS	PHPA	
PHASEOLUS WRIGHTII	PHWR	
PLUMMERA FLORIBUNDA	PLFL	
POLYGALA LONGA	POLO	
POLYGALA OBSCURA	POOB	
POTENTILLA SPP.	POTENT	
POTENTILLA SUBVISCOSA	POSU	
POTENTILLA THURBERI	POTH	
PSEUDOCYMOPTERUS MONTANUS	PSMO	
PTERIDIUM AQUILINUM	PTAQ	
PTEROSPORA ANDROMEDEA	PTAND	
PYROLA CHLORANTHA	PYCH	P. VIRENS
PYROLA PICTA	PYPI	
SALVIA ARIZONICA	SAAR	
SALVIA LEMMONI	SALE	
SCROPHULARIA PARVIFOLIA	SCPA	
SENECIO EREMOPHILUS	SEER	
SENECIO NEOMEXICANUS	SENE	
SENECIO WOOTONI	SEWO	
SILENE SPP.	SILENE	
SILENE LACINIATA	SILA	
SILENE SCOULERI	SISC	
SISYMBRIUM LINEARIFOLIUM	SILI	
SMILACINA RACEMOSA	SMRA	
SMILACINA STELLATA	SMST	
SOLANUM TUBEROSUM	SOTU	
SOLIDAGO SPP.	SOLIDA	
SOLIDAGO SPARSIFLORA	SOSP	

Table A-1. (continued)

LIFE FORM/SPECIES/SIZE CLASS	CODE	SYNONOMY
SOLIDAGO WRIGHTII	SOWR	
STEVIA SPP.	STEVIA	
STEVIA PLUMMERAE	STPL	
STEVIA SERRATA	STSE	
TARAXACUM OFFICINALE	TAOF	
THALICTRUM FENDLERI	THFE	
THELYPODIUM LONGIFOLIUM	THLO	
THERMOPSIS PINETORUM	THPI	
THLASPI FENDLERI	THLFE	
TRAGIA RAMOSA	TRRA	
TRIFOLIUM PINETORUM	TRPI	
VALERIANA ACUTILOBA	VAAC	
VERBENA BIPINNATIFIDA	VEBI	
VERBESINA LONGIFOLIA	VELO	
VICIA SPP.	VICIA	
VICIA AMERICANA	VIAM	
VICIA PULCHELLA	VIPU	
VIGUIERA DENTATA	VIDE	
VIGUIERA MULTIFLORA	VIMU	
VIOLA CANADENSIS	VICA	
WOODSIA MEXICANA	WOME	

Table A-2. Forest series and habitat types south of the Mogollon Rim and the number of plots sampled by habitat type.

	# plots
Abies lasiocarpa Series	
Abies lasiocarpa/Vaccinium myrtillus HT	1
Abies lasiocarpa/Moss HT	2
Picea engelmannii Series	
Picea engelmannii/Carex foenea HT	2
Picea engelmannii/Acer glabrum HT	4
Abies concolor Series	
Abies concolor/Acer glabrum HT	3
Abies concolor/Carex foenea HT	2
Abies concolor/Sparse HT	6
Abies concolor/Quercus gambelii HT	1
Abies concolor/Acer grandidentatum HT	1
Pseudotsuga menziesii Series	
Pseudotsuga menziesii/Muhlenbergia virescens HT	9
Pseudotsuga menziesii/Quercus gambelii HT	10
Pseudotsuga menziesii/Quercus rugosa HT	1
Pseudotsuga menziesii/Quercus hypoleucoides HT	2
Pseudotsuga menziesii/Quercus arizonica HT	1
Pseudotsuga menziesii/Acer gradidentatum	2
Pinus ponderosa Series	
Pinus ponderosa/Muhlenbergia virescens HT	5
Pinus ponderosa/Quercus gambelii HT	5
Pinus ponderosa/Quercus rugosa HT	5
Pinus ponderosa/Quercus hypoleucoides HT	12
Pinus ponderosa/Quercus arizonica HT	12
Pinus ponderosa/Bouteloua gracilis HT	1
Pinus engelmannii Series	
Pinus engelmannii/Muhlenbergia longiligula HT	1
Pinus engelmannii/Quercus hypoleucoides HT	4
Pinus engelmannii/Quercus arizonica HT	1
Pinus leiophylla Series	
Pinus leiophylla/Quercus hypoleucoides HT	7
Pinus leiophylla/Quercus arizonica HT	11
Pinus leiophylla/Quercus toumeyi HT	1
Pinus leiophylla/Piptochaetium fimbriatum HT	6
Pinus discolor Series (not discussed here)	3
Early successional plots (not discussed here)	2
TOTAL	123

Table A-3. Tree density and shrub-herb cover for the forest habitat types south of the Mogollon Rim. Table numbers for the major habitat types correspond to their numerical designations given in the text. Tables for other (minor) habitat types follow the major habitat types in each series and are designated by OT.

VEGETATION CHARACTERISTICS FOR HABITAT TYPES

FORESTS SOUTH OF THE MOGOLLON RIM: PIEN AND ABLA SERIES

TABLE 1 SOUTH OF MOGOLLON RIM: VEGETATION CHARACTERISTICS - ABIES LASIOCARPA/MOSS HT

	PLOTS-PI:	M	M
	-NJ:	397	399
ABIES CONCOLOR (YNG. REGEN.)			
ABIES CONCOLOR (ADV. REGEN.)			
ABIES CONCOLOR (MATURE)			
ABIES LASIOCARPA (YNG. REGEN.)		12	4
ABIES LASIOCARPA (ADV. REGEN.)		3	17
ABIES LASIOCARPA (MATURE)		P	7
PICEA ENGELMANNII (YNG. REGEN)		33	8
PICEA ENGELMANNII (ADV. REGEN)		34	9
PICEA ENGELMANNII (MATURE)		4	3
PINUS STROBIFORMIS (YNG. REG.)			P
PINUS STROBIFORMIS (ADV. REG.)			P
PINUS STROBIFORMIS (MATURE)			P
POPULUS TREMULOIDES (Y. REG.)			
POPULUS TREMULOIDES (A. REG.)			P
POPULUS TREMULOIDES (MATURE)			
PSEUDOTSUGA MENZIESII (Y. REG)		2	
PSEUDOTSUGA MENZIESII (A. REG)			
PSEUDOTSUGA MENZIESII (MATURE)		1	
ACER GLABRUM			
HOLODISCUS DUMOSUS		P	
LONICERA UTAHENSIS			
POPULUS TREMULOIDES			T
RIBES MONTIGENUM			
SYMPHORICARPOS OREOPHILUS			
VACCINIUM MYRTILLUS		P	.1
BROMOPSIS CILIATA		T	
CAREX FOENEA		P	
FESTUCA SUBORIA			
POA FENDLERIANA			
POA PRATENSIS			
CHIMAPHILA UMBELLATA			
ERIGERON EXIMIUS			
FRAGARIA AMERICANA			
FRAGARIA UVALIS			
GERANIUM RICHARDSONII			
LATHYRUS ARIZONICUS		P	
LIGUSTICUM PORTERI			
OREOCHRYSUM PARRYI			P
PSEUDOCYMOPTERUS MONTANUS			
PTERIDIUM AQUILINUM			
PYROLA CHLORANTHA			P
SENECIO WOOTONI		T	
SMILACINA RACEMOSA			
SMILACINA STELLATA			
THALICTRUM FENDLERI			
VIOLA CANADENSIS			

TREE DATA IN STEMS/375 SQ M. SHRUB, GRASS & HERB DATA AS COVER.
T = SPECIES PRESENT IN TRACE AMOUNTS.
P = SPECIES NOT IN THE PLOT BUT IN THE STAND.

TABLE 2 SOUTH OF MOGOLLON RIM: VEGETATION CHARACTERISTICS - PICEA ENGELMANNII/ACER GLABRUM HT

PLOTS-PI:	M	O	B	O
-NJ:	406	8	9	34
ABIES CONCOLOR (YNG. REGEN.)	13	2	45	5
ABIES CONCOLOR (ADV. REGEN.)				1
ABIES CONCOLOR (MATURE)	1	1	3	
ABIES LASIOCARPA (YNG. REGEN.)				
ABIES LASIOCARPA (ADV. REGEN.)				
ABIES LASIOCARPA (MATURE)				
PICEA ENGELMANNII (YNG. REGEN)	5	64	1	36
PICEA ENGELMANNII (ADV. REGEN)	2	7	3	11
PICEA ENGELMANNII (MATURE)	7	4	7	5
PINUS STROBIFORMIS (YNG. REG.)		5		27
PINUS STROBIFORMIS (ADV. REG.)				4
PINUS STROBIFORMIS (MATURE)				1
POPULUS TREMULOIDES (Y. REG.)				
POPULUS TREMULOIDES (A. REG.)		8	1	P
POPULUS TREMULOIDES (MATURE)	1	17	7	
PSEUDOTSUGA MENZIESII (Y. REG)	13	1	2	77
PSEUDOTSUGA MENZIESII (A. REG)		2		4
PSEUDOTSUGA MENZIESII (MATURE)	1	3	4	8
ACER GLABRUM	10	T	35	T
AGLODISCUS DUMOSUS				.1
LONICERA UTAHENSIS				
POPULUS TREMULOIDES	T	T	.1	
RIBES MONTIGENUM				
SYMPHORICARPOS OREOPHILUS				T
VACCINIUM MYRTILLUS				2
BROMOPSIS CILIATA	1		T	
CAREX FOENEA				
FESTUCA SUBULATA	4			
POA FENDLERIANA				
POA PRATENSIS				
CHIMAPHILA UMBELLATA				T
ERIGERON EXIMIUS			.1	
FRAGARIA AMERICANA				T
FRAGARIA UTALIS				
GERANIUM RICHARDSONII				T
LATHYRUS ARIZONICUS			T	
LIGUSTICUM PORTERI	T	T	.1	
OREOCHRYSUM PARRYI				
PSEUDOCYMOPTERUS MONTANUS	P	T	T	.1
PTERIDIUM AQUILINUM	T		3	T
PYROLA CHLORANTHA			T	
SENECIO WOOTONI	P			
SMILACINA RACEMOSA			T	.1
SMILACINA STELLATA	T			
THALICTRUM FENDLERI			.1	
VIOLA CANADENSIS	.1	P	.1	

TREE DATA IN STEMS/375 SQ M. SHRUB, GRASS & HERB DATA AS COVER.
T = SPECIES PRESENT IN TRACE AMOUNTS.
P = SPECIES NOT IN THE PLOT BUT IN THE STAND.

TABLE 37 SOUTH OF MOGOLLON RIM: VEGETATION CHARACTERISTICS -
ABIES LASIOCARPA/VACCINIUM MYRTILLUS HT

PLOTS-PI: M
-NO: 398

ABIES CONCOLOR (YNG. REGEN.)	
ABIES CONCOLOR (ADV. REGEN.)	
ABIES CONCOLOR (MATURE)	
ABIES LASIOCARPA (YNG. REGEN.)	43
ABIES LASIOCARPA (ADV. REGEN.)	19
ABIES LASIOCARPA (MATURE)	P
PICEA ENGELMANNII (YNG. REGEN)	41
PICEA ENGELMANNII (ADV. REGEN)	1
PICEA ENGELMANNII (MATURE)	6
PINUS STROBIFORMIS (YNG. REG.)	
PINUS STROBIFORMIS (ADV. REG.)	
PINUS STROBIFORMIS (MATURE)	
POPULUS TREMULOIDES (Y. REG.)	
POPULUS TREMULOIDES (A. REG.)	
POPULUS TREMULOIDES (MATURE)	P
PSEUDOTSUGA MENZIESII (Y. REG)	
PSEUDOTSUGA MENZIESII (A. REG)	
PSEUDOTSUGA MENZIESII (MATURE)	
ACER GLABRUM	
HOLODISCUS DUMOSUS	
LONICERA UTAHENSIS	.1
POPULUS TREMULOIDES	.1
RIBES MONTIGENUM	
SYMPHORICARPOS OREOPHILUS	
VACCINIUM MYRTILLUS	10
BROMOPSIS CILIATA	T
CAREX FOENEA	P
FESTUCA SUBULATA	T
POA FENDLERIANA	
POA PRATENSIS	
CHIMAPHILA UMBELLATA	
ERIGERON EXIMIUS	
FRAGARIA AMERICANA	
FRAGARIA UTALIS	
GERANIUM RICHARDSONII	
LATHYRUS ARIZONICUS	
LIGUSTICUM PORTERI	T
OREOCHRYSUM PARRYI	
PSEUDOCYMOPTERUS MONTANUS	T
PTERIDIUM AQUILINUM	
PYROLA CHLORANTHA	T
SENECIO WOOTONI	
SMILACINA RACEMOSA	
SMILACINA STELLATA	
THALICTRUM FENDLERI	
VIOLA CANADENSIS	

TREE DATA IN STEMS/375 SQ M. SHRUB, GRASS & HERB DATA AS COVER.
T = SPECIES PRESENT IN TRACE AMOUNTS.
P = SPECIES NOT IN THE PLOT BUT IN THE STAND.

TABLE 31 SOUTH OF MOGOLLON RIM: VEGETATION CHARACTERISTICS - PICEA ENGELMANNII/CAREX FOENEA HT

	PLOTS-PI:	M
	-NO:	400 401
ABIES CONCOLOR (YNG. REGEN.)		
ABIES CONCOLOR (ADV. REGEN.)		
ABIES CONCOLOR (MATURE)		
ABIES LASIOCARPA (YNG. REGEN.)		1
ABIES LASIOCARPA (ADV. REGEN.)		
ABIES LASIOCARPA (MATURE)		
PICEA ENGELMANNII (YNG. REGEN)	16	5
PICEA ENGELMANNII (ADV. REGEN)	11	5
PICEA ENGELMANNII (MATURE)	10	7
PINUS STROBIFORMIS (YNG. REG.)		
PINUS STROBIFORMIS (ADV. REG.)		
PINUS STROBIFORMIS (MATURE)		
POPULUS TREMULOIDES (Y. REG.)		
POPULUS TREMULOIDES (A. REG.)		
POPULUS TREMULOIDES (MATURE)		
PSEUDOTSUGA MENZIESII (Y. REG)		
PSEUDOTSUGA MENZIESII (A. REG)		
PSEUDOTSUGA MENZIESII (MATURE)		
ACER GLABRUM		
ARCTOSTAPHYLOS PUNGENS	P	
LONICERA UTAHENSIS		
POPULUS TREMULOIDES		
RIBES MONTIGENUM	T	
SYMPHORICARPOS OREOPHILUS		
VACCINIUM MYRTILLUS		
BROMOPSIS CILIATA	.1	.1
CAREX FOENEA	3	70
FESTUCA SUBULATA	T	1
POA FENDLERIANA	.1	
POA PRATENSIS		4
CHIMAPHILA UMBELLATA		
ERIGERON EXIMIUS		
FRAGARIA AMERICANA		
FRAGARIA UVALIS		T
GERANIUM RICHARDSONII	T	P
LATHYRUS ARIZONICUS	T	T
LIGUSTICUM PORTERI		
ORTHOCHRYSUM PARRYI	T	T
PSEUDOCYMOPTERUS MONTANUS	T	
PTERIDIUM AQUILINUM		
PYROLA CHLORANTHA		
SENECIO WOOTONI	.1	
SMILACINA RACEMOSA		
SMILACINA STELLATA		
THALICTRUM FENDLERI		
VIOLA CANADENSIS		

TREE DATA IN STEMS/375 SQ M. SHRUB, GRASS & HERB DATA AS COVER.
T = SPECIES PRESENT IN TRACE AMOUNTS.
P = SPECIES NOT IN THE PLOT BUT IN THE STAND.

VEGETATION CHARACTERISTICS FOR HABITAT TYPES

FORESTS SOUTH OF THE MOGOLLON RIM: ABCO AND PSME SERIES

TABLE 3 SOUTH OF MOGOLLON RIM: VEGETATION CHARACTERISTICS - ABIES CONCOLOR/ACER GLABRUM HT

PLOTS-PI:	M	M	D
-NO:	386	391	72
ABIES CONCOLOR (YNG. REGEN.)	19	22	20
ABIES CONCOLOR (ADV. REGEN.)	30	2	5
ABIES CONCOLOR (MATURE)	3	4	
ACER GRANDIDENTATUM (Y.REGEN.)			
ACER GRANDIDENTATUM (A.REGEN.)			
ACER GRANDIDENTATUM (MATURE)			
JUNIPERUS DEPPEANA (Y. REGEN.)			
JUNIPERUS DEPPEANA (A. REGEN.)			
JUNIPERUS DEPPEANA (MATURE)			
PINUS PONDEROSA (YNG. REGEN.)			
PINUS PONDEROSA (ADV. REGEN.)			
PINUS PONDEROSA (MATURE)	P		
PINUS STROBIFORMIS (YNG. REG.)	3	3	1
PINUS STROBIFORMIS (ADV. REG.)		1	3
PINUS STROBIFORMIS (MATURE)		2	2
POPULUS TREMULOIDES (Y. REG.)			
POPULUS TREMULOIDES (A. REG.)	4	P	5
POPULUS TREMULOIDES (MATURE)	2	P	
PSEUDOTSUGA MENZIESII (Y. REG)	1	20	2
PSEUDOTSUGA MENZIESII (A. REG)			1
PSEUDOTSUGA MENZIESII (MATURE)	8	3	7
QUERCUS ARIZONICA (Y. REGEN.)			
QUERCUS ARIZONICA (A. REGEN.)			
QUERCUS ARIZONICA (MATURE)			
QUERCUS GAMBELII (Y. REGEN.)			
QUERCUS GAMBELII (A. REGEN.)			
QUERCUS GAMBELII (MATURE)			
QUERCUS HYPOLEUCOIDES (Y.REG.)			
QUERCUS HYPOLEUCOIDES (A.REG.)			
QUERCUS HYPOLEUCOIDES (MATURE)			
QUERCUS RUGOSA (Y. REGEN.)			
QUERCUS RUGOSA (A. REGEN.)			
QUERCUS RUGOSA (MATURE)			
ACER GLABRUM	30	7	6
ACER GRANDIDENTATUM			
CEANOTHUS FENDLERI			
CERCOCARPUS MONTANUS			
FRAXINUS PENNSYLVANICA			
HOLODISCUS DUMOSUS	P	P	1
JUGLANS MAJOR			
LONICERA ARIZONICA			
POPULUS TREMULOIDES	T		4
PTELEA ANGUSTIFOLIA			
QUERCUS ARIZONICA			
QUERCUS CHRYSOLEPIS			
QUERCUS EMORYI			
QUERCUS GAMBELII			
QUERCUS HYPOLEUCOIDES			
QUERCUS RUGOSA			
RHAMNUS BETULAEFOLIA			
RHUS AROMATICA			
ROBINIA NEOMEXICANA		P	.1

TABLE 3 SOUTH OF MOGOLLON RIM: VEGETATION CHARACTERISTICS - ABIES CONCOLOR/ACER GLABRUM HT

	PLOTS=PI:	M	M	D
	-NO:	386	391	72
ROBUS NEOMEXICANUS				
SYMPHORICARPOS OREOPHILUS				
VITIS ARIZONICA				
YUCCA SCHOTTII				
AGROPYRON ARIZONICUM				
BROMOPSIS CILIATA		T	10	4
BROMOPSIS PORTERI				
CAREX FOENEA			P	3
KOELERIA MACRANTHA		T		
MUHLENBERGIA LONGILIGULA				
MUHLENBERGIA MONTANA				
MUHLENBERGIA VIRESCENS				
PANICUM BULBOSUM				
POA FENDLERIANA			T	T
POA PRATENSIS				
ACHILLEA MILLEFOLIUM				
ANTENNARIA NEGLECTA				
ARENARIA LANUGINOSA				T
ARTEMISIA LUDOVICIANA				
CACALIA DECOMPOSITA				
COMANDRA UMBELLATA S. PALLIDA				
ERIGERON FORMOSISSIMUS				
ERIGERON NEOMEXICANUS				
ERIGERON ROSBYI				1
ERIGERON EXIMIUS				25
EUPATORIUM HERBACEUM				
FRAGARIA AMERICANA		P		8
FRAGARIA UVALIS			T	
GALIUM ASPERRIMUM				
GALIUM BOREALE			P	
GALIUM FENDLERI				
GERANIUM CAESPITOSUM				
GERANIUM RICHARDSONII			T	3
HELENIUM HOOPESII			.1	
LATHYRUS ARIZONICUS				.1
LATHYRUS GRAMINIFOLIUS				
LIGUSTICUM PORTERI				
OREOCHRYSUM PARRYI				3
PENSTEMON BARBATUS				
PSEUDOCYMOPTERUS MONTANUS		.1	T	
PTERIDIUM AQUILINUM			.1	
SENECIO NEOMEXICANUS				
SENECIO WOOTONI			1	.1
SMILACINA RACEMOSA		T		
THALICTRUM FENDLERI			P	
THERMOPSIS PINETORUM				
VICIA AMERICANA		P	T	2
VIOLA CANADENSIS			P	

TREE DATA IN STEMS/375 SQ M. SHRUB, GRASS & HERB DATA AS COVER.
T = SPECIES PRESENT IN TRACE AMOUNTS.
P = SPECIES NOT IN THE PLOT BUT IN THE STAND.

TABLE 4 SOUTH OF MOGOLLON RIM: VEGETATION CHARACTERISTICS - ABIES CONCOLOR/SPARSE HT

	PLOTS-PI:	M	M	M	M	M	M
	-NO:	385	387	394	396	402	404
ABIES CONCOLOR (YNG. REGEN.)		8	12	49	52	65	1
ABIES CONCOLOR (ADV. REGEN.)		10	3	8	6	14	4
ABIES CONCOLOR (MATURE)		7	P	3	2		5
ACER GRANDIDENTATUM (Y.REGEN.)							
ACER GRANDIDENTATUM (A.REGEN.)							
ACER GRANDIDENTATUM (MATURE)							
JUNIPERUS DEPPEANA (Y. REGEN.)							
JUNIPERUS DEPPEANA (A. REGEN.)							
JUNIPERUS DEPPEANA (MATURE)							
PINUS PONDEROSA (YNG. REGEN.)		1				1	
PINUS PONDEROSA (ADV. REGEN.)		2				3	
PINUS PONDEROSA (MATURE)			1			2	P
PINUS STROBIFORMIS (YNG. REG.)			7	2	23	4	
PINUS STROBIFORMIS (ADV. REG.)		7	1		4	5	P
PINUS STROBIFORMIS (MATURE)				2	6	2	1
POPULUS TREMULOIDES (Y. REG.)							
POPULUS TREMULOIDES (A. REG.)					6		
POPULUS TREMULOIDES (MATURE)							
PSEUDOTSUGA MENZIESII (Y. REG)		8	11	3	15	74	1
PSEUDOTSUGA MENZIESII (A. REG)		6	17	1	14	5	4
PSEUDOTSUGA MENZIESII (MATURE)			7	7	2	2	2
QUERCUS ARIZONICA (Y. REGEN.)							
QUERCUS ARIZONICA (A. REGEN.)							
QUERCUS ARIZONICA (MATURE)							
QUERCUS GAMBELII (Y. REGEN.)							
QUERCUS GAMBELII (A. REGEN.)							
QUERCUS GAMBELII (MATURE)							
QUERCUS HYPOLEUCOIDES (Y.REG.)							
QUERCUS HYPOLEUCOIDES (A.REG.)							
QUERCUS HYPOLEUCOIDES (MATURE)							
QUERCUS RUGOSA (Y. REGEN.)							
QUERCUS RUGOSA (A. REGEN.)							
QUERCUS RUGOSA (MATURE)							
ACER GLABRUM				P			P
ACER GRANDIDENTATUM							
CEANOTHUS FENDLERI							
CERCOCARPUS MONTANUS							
FRAXINUS PENNSYLVANICA							
HOLODISCUS DUMOSUS		.1		P	P	P	
JUGLANS MAJOR							
LONICERA ARIZONICA					T		
POPULUS TREMULOIDES					T		
PTELEA ANGUSTIFOLIA							
QUERCUS ARIZONICA							
QUERCUS CHRYSOLEPIS							
QUERCUS EMORYI							
QUERCUS GAMBELII						P	
QUERCUS HYPOLEUCOIDES							
QUERCUS RUGOSA							
RHAMNUS BETULAEFOLIA							
RHUS AROMATICA							
ROBINIA NEOMEXICANA							

TABLE 4 SOUTH OF MOGOLLON RIM: VEGETATION CHARACTERISTICS - ABIES CONCOLOR/SPARSE HT

PLOTS-PI:	M	M	M	M	M	M
-NO:	385	387	394	396	402	404
RUBUS NEOMEXICANUS						
SYMPHORICARPOS OREOPHILUS						
VITIS ARIZONICA						
YUCCA SCHOTTII						
AGROPYRON ARIZONICUM					P	P
BROMOPSIS CILIATA	.1	.1	3	P	P	T
BROMOPSIS PORTERI						
CAREX FOENEA			P			
KOELERIA MACRANTHA	3	1		.1	.1	T
MUHLENBERGIA LONGILIGULA						
MUHLENBERGIA MONTANA				T	T	
MUHLENBERGIA VIRESCENS						
PANICUM BULBOSUM						
POA FENDLERIANA			P		1	T
POA PRATENSIS						
ACHILLEA MILLEFOLIUM						
ANTENNARIA NEGLECTA						
ARENARIA LANUGINOSA						
ARTEMISIA LUDOVICIANA						
CACALIA DECOMPOSITA						
CUMANDRA UMBELLATA S. PALLIDA					P	
ERIGERON FORMOSISSIMUS						
ERIGERON NEOMEXICANUS						
ERIGERON RUSBYI					T	
ERIGERON EXIMIUS						
EUPATORIUM HERBACEUM						T
FRAGARIA AMERICANA	.1	T		T		
FRAGARIA UVALIS			P			
GALIUM ASPERRIMUM						
GALIUM BOREALE				T		
GALIUM FENDLERI						
GERANIUM CAESPITOSUM						
GERANIUM RICHARDSONII			T			P
HELENIUM HOOPESII		P				P
LATHYRUS ARIZONICUS					P	
LATHYRUS GRAMINIFOLIUS						
LIGUSTICUM PORTERI	P					
OREOCHRYSUM PARRYI						
PENSTEMON BARBATUS	T					
PSEUDOCYMOPTERUS MONTANUS	1	.1			T	
PTERIDIUM AQUILINUM	T		1		T	
SENECIO NEOMEXICANUS						
SENECIO WOOTONI	T		P	T	T	
SMILACINA RACEMOSA						
THALICTRUM FENDLERI		T	T			T
THERMOPSIS PINETORUM				T	1	
VICIA AMERICANA	T					T
VIOLA CANADENSIS	T					P

TREE DATA IN STEMS/375 SQ M. SHRUB, GRASS & HERB DATA AS COVER.
T = SPECIES PRESENT IN TRACE AMOUNTS.
P = SPECIES NOT IN THE PLOT BUT IN THE STAND.

TABLE 3 SOUTH OF MOGOLLON RIM: VEGETATION CHARACTERISTICS - ABIES CONCOLOR/QUERCUS GAMBELII HT

	PLOTS-PI: M
	-NJ: 377
ABIES CONCOLOR (YNG. REGEN.)	17
ABIES CONCOLOR (ADV. REGEN.)	5
ABIES CONCOLOR (MATURE)	2
ACER GRANDIDENTATUM (Y.REGEN.)	
ACER GRANDIDENTATUM (A.REGEN.)	
ACER GRANDIDENTATUM (MATURE)	
JUNIPERUS DEPPEANA (Y. REGEN.)	3
JUNIPERUS DEPPEANA (A. REGEN.)	2
JUNIPERUS DEPPEANA (MATURE)	
PINUS PONDEROSA (YNG. REGEN.)	7
PINUS PONDEROSA (ADV. REGEN.)	12
PINUS PONDEROSA (MATURE)	
PINUS STROBIFORMIS (YNG. REG.)	8
PINUS STROBIFORMIS (ADV. REG.)	2
PINUS STROBIFORMIS (MATURE)	
POPULUS TREMULOIDES (Y. REG.)	
POPULUS TREMULOIDES (A. REG.)	
POPULUS TREMULOIDES (MATURE)	
PSEUDOTSUGA MENZIESII (Y. REG)	12
PSEUDOTSUGA MENZIESII (A. REG)	11
PSEUDOTSUGA MENZIESII (MATURE)	2
QUERCUS ARIZONICA (Y. REGEN.)	
QUERCUS ARIZONICA (A. REGEN.)	
QUERCUS ARIZONICA (MATURE)	
QUERCUS GAMBELII (Y. REGEN.)	
QUERCUS GAMBELII (A. REGEN.)	
QUERCUS GAMBELII (MATURE)	4
QUERCUS HYPOLEUCOIDES (Y.REG.)	
QUERCUS HYPOLEUCOIDES (A.REG.)	1
QUERCUS HYPOLEUCOIDES (MATURE)	
QUERCUS RUGOSA (Y. REGEN.)	
QUERCUS RUGOSA (A. REGEN.)	
QUERCUS RUGOSA (MATURE)	
ACER GLABRUM	
ACER GRANDIDENTATUM	
CEANOTHUS FENDLERI	
CERCOCARPUS MONTANUS	
FRAXINUS PENNSYLVANICA	
HOLODISCUS DUMOSUS	T
JUGLANS MAJOR	
LONICERA ARIZONICA	
POPULUS TREMULOIDES	
PTELEA ANGUSTIFOLIA	10
QUERCUS ARIZONICA	
QUERCUS CHRYSOLEPIS	
QUERCUS EMORYI	
QUERCUS GAMBELII	20
QUERCUS HYPOLEUCOIDES	8
QUERCUS RUGOSA	T
RHAMNUS BETULAEFOLIA	1
RHUS AROMATICA	2
ROBINIA NEOMEXICANA	T

TABLE 5 SOUTH OF MOGOLLON RIM: VEGETATION CHARACTERISTICS -.
ABIES CONCOLOR/QUERCUS GAMBELII HT
PLOTS-PI: 4
-NJ: 377

RUBUS NEOMEXICANUS	
SYMPHORICARPOS OREOPHILUS	.1
VITIS ARIZONICA	
YUCCA SCHOTTII	
AGROPYRON ARIZONICUM	
BROMOPSIS CILIATA	1
BROMOPSIS PORTERI	
CAREX FOENEA	
KOELERIA MACRANTHA	T
MUHLENBERGIA LONGILIGULA	
MUHLENBERGIA MONTANA	
MUHLENBERGIA VIRESCENS	
PANICUM BULBOSUM	10
POA FENDLERIANA	
POA PRATENSIS	
ACHILLEA MILLEFOLIUM	1
ANTENNARIA NEGLECTA	
ARENARIA LANUGINOSA	
ARTEMISIA LUDOVICIANA	
CACALIA DECOMPOSITA	
COMANDRA UMBELLATA S. PALLIDA	
ERIGERON FORMOSISSIMUS	
ERIGERON NEOMEXICANUS	.1
ERIGERON RUSBYI	
ERIGERON EXIMIUS	
EUPATORIUM HERBACEUM	T
FRAGARIA AMERICANA	
FRAGARIA UVALIS	
GALIUM ASPERRIMUM	
GALIUM BOREALE	
GALIUM FENDLERI	
GERANIUM CAESPITOSUM	
GERANIUM RICHARDSONII	
HELENIUM HOOPESII	
LATHYRUS ARIZONICUS	1
LATHYRUS GRAMINIFOLIUS	
LIGUSTICUM PORTERI	
OREOCHRYSUM PARRYI	
PENSTEMON BARBATUS	
PSEUDOCYMOPTERUS MONTANUS	5
PTERIDIUM AQUILINUM	
SENECIO NEOMEXICANUS	1
SENECIO WOOTONI	
SMILACINA RACEMOSA	
THALICTRUM FENDLERI	4
THERMOPSIS PINETORUM	
VICIA AMERICANA	
VIOLA CANADENSIS	1

TREE DATA IN STEMS/375 SQ M. SHRUB, GRASS & HERB DATA AS COVER.
T = SPECIES PRESENT IN TRACE AMOUNTS.
0 = SPECIES NOT IN THE PLOT BUT IN THE STAND.

TABLE 3 SOUTH OF MOGOLLON RIM: VEGETATION CHARACTERISTICS -
ABIES CONCOLOR/ACER GRANDIDENTATUM HT

	PLOTS-PI:	D
	-NJ:	43
ABIES CONCOLOR (YNG. REGEN.)		4
ABIES CONCOLOR (ADV. REGEN.)		4
ABIES CONCOLOR (MATURE)		4
ACER GRANDIDENTATUM (Y.REGEN.)		8
ACER GRANDIDENTATUM (A.REGEN.)		15
ACER GRANDIDENTATUM (MATURE)		2
JUNIPERUS DEPPEANA (Y. REGEN.)		
JUNIPERUS DEPPEANA (A. REGEN.)		
JUNIPERUS DEPPEANA (MATURE)		
PINUS PONDEROSA (YNG. REGEN.)		
PINUS PONDEROSA (ADV. REGEN.)		
PINUS PONDEROSA (MATURE)		
PINUS STROBIFORMIS (YNG. REG.)		
PINUS STROBIFORMIS (ADV. REG.)		
PINUS STROBIFORMIS (MATURE)		2
POPULUS TREMULOIDES (Y. REG.)		
POPULUS TREMULOIDES (A. REG.)		
POPULUS TREMULOIDES (MATURE)		
PSEUDOTSUGA MENZIESII (Y. REG)		
PSEUDOTSUGA MENZIESII (A. REG)		2
PSEUDOTSUGA MENZIESII (MATURE)		3
QUERCUS ARIZONICA (Y. REGEN.)		
QUERCUS ARIZONICA (A. REGEN.)		
QUERCUS ARIZONICA (MATURE)		
QUERCUS GAMBELII (Y. REGEN.)		
QUERCUS GAMBELII (A. REGEN.)		
QUERCUS GAMBELII (MATURE)		
QUERCUS HYPOLEUCOIDES (Y.REG.)		
QUERCUS HYPOLEUCOIDES (A.REG.)		
QUERCUS HYPOLEUCOIDES (MATURE)		
QUERCUS RUGOSA (Y. REGEN.)		
QUERCUS RUGOSA (A. REGEN.)		
QUERCUS RUGOSA (MATURE)		
ACER GLABRUM		
ACER GRANDIDENTATUM		40
CEANOTHUS FENDLERI		
CERCOCARPUS MONTANUS		
FRAXINUS PENNSYLVANICA		T
HOLODISCUS DUMOSUS		
JUGLANS MAJOR		2
LONICERA ARIZONICA		
POPULUS TREMULOIDES		
PTELEA ANGUSTIFOLIA		P
QUERCUS ARIZONICA		
QUERCUS CHRYSOLEPIS		
QUERCUS EMORYI		
QUERCUS GAMBELII		T
QUERCUS HYPOLEUCOIDES		
QUERCUS RUGOSA		
RHAMNUS BETULAEFOLIA		1
RHUS AROMATICA		
ROBINIA NEOMEXICANA		

TABLE 5 SOUTH OF MOGOLLON RIM: VEGETATION CHARACTERISTICS - ABIES CONCOLOR/ACER GRANDIDENTATUM HT

PLOTS-PI: 0
-VO: 43

RUBUS NEOMEXICANUS	
SYMPHORICARPOS OREOPHILUS	
VITIS ARIZONICA	
YUCCA SCHOTTII	
AGROPYRON ARIZONICUM	
BROMOPSIS CILIATA	.1
BROMOPSIS PORTERI	
CAREX FOENEA	T
KOELERIA MACRANTHA	
MUHLENBERGIA LONGILIGULA	
MUHLENBERGIA MONTANA	
MUHLENBERGIA VIRESCENS	
PANICUM BULBOSUM	
POA FENDLERIANA	
POA PRATENSIS	
ACHILLEA MILLEFOLIUM	
ANTENNARIA NEGLECTA	
ARENARIA LANUGINOSA	
ARTEMISIA LUDOVICIANA	
CACALIA DECOMPOSITA	
COMANDRA UMBELLATA S. PALLIDA	
ERIGERON FORMOSISSIMUS	
ERIGERON NEOMEXICANUS	
ERIGERON RUSBYI	
ERIGERON EXIMIUS	
EUPATORIUM HERBACEUM	
FRAGARIA AMERICANA	
FRAGARIA UVALIS	
GALIUM ASPERRIMUM	T
GALIUM BOREALE	
GALIUM FENDLERI	
GERANIUM CAESPITOSUM	
GERANIUM RICHARDSONII	
HELENIUM HOOPESII	
LATHYRUS ARIZONICUS	T
LATHYRUS GRAMINIFOLIUS	
LIGUSTICUM PORTERI	
ORTHOCHRYSUM PARRYI	
PENSTEMON BARBATUS	
PSEUDOCYMOPTERUS MONTANUS	
PTERIDIUM AQUILINUM	1
SENECIO NEOMEXICANUS	
SENECIO WOOTONI	
SMILACINA RACEMOSA	.1
THALICTRUM FENDLERI	T
THERMOPSIS PINETORUM	
VICIA AMERICANA	
VIOLA CANADENSIS	

TREE DATA IN STEMS/375 SQ M. SHRUB, GRASS & HERB DATA AS COVER.
T = SPECIES PRESENT IN TRACE AMOUNTS.
P = SPECIES NOT IN THE PLOT BUT IN THE STAND.

TABLE 7 SOUTH OF MOGOLLON RIM: VEGETATION CHARACTERISTICS - PSEUDOTSUGA MENZIESII/MUHLENBERGIA VIRESCENS HT

PLOTS-PI:	M	M	M	M	M	M	M	M	O
-NO:	381	382	383	384	388	389	405	407	10
ABIES CONCOLOR (YNG. REGEN.)			3						
ABIES CONCOLOR (ADV. REGEN.)					2			1	
ABIES CONCOLOR (MATURE)									
ACER GRANDIDENTATUM (Y.REGEN.)									
ACER GRANDIDENTATUM (A.REGEN.)									
ACER GRANDIDENTATUM (MATURE)									
JUNIPERUS DEPPEANA (Y. REGEN.)									
JUNIPERUS DEPPEANA (A. REGEN.)									
JUNIPERUS DEPPEANA (MATURE)									
PINUS PONDEROSA (YNG. REGEN.)	8	26	24	13	7	9	3	10	13
PINUS PONDEROSA (ADV. REGEN.)		2	6	1	8	15	1	3	11
PINUS PONDEROSA (MATURE)	6	5	5	4	3	3	2	8	5
PINUS STROBIFORMIS (YNG. REG.)	10	15	22	10	10	6	8	5	55
PINUS STROBIFORMIS (ADV. REG.)	3	2		P		4	2	2	
PINUS STROBIFORMIS (MATURE)		1		1	P	P	1		3
POPULUS TREMULOIDES (Y. REG.)									
POPULUS TREMULOIDES (A. REG.)									
POPULUS TREMULOIDES (MATURE)									
PSEUDOTSUGA MENZIESII (Y. REG)	8	115	150	56	48	16	57	20	22
PSEUDOTSUGA MENZIESII (A. REG)			18	8	21	7		19	1
PSEUDOTSUGA MENZIESII (MATURE)	1	3	1	P	1	P	4	P	1
QUERCUS ARIZONICA (Y. REGEN.)									
QUERCUS ARIZONICA (A. REGEN.)									
QUERCUS ARIZONICA (MATURE)									
QUERCUS GAMBELII (Y. REGEN.)									
QUERCUS GAMBELII (A. REGEN.)									
QUERCUS GAMBELII (MATURE)									
QUERCUS HYPOLEUCOIDES (Y.REG.)									
QUERCUS HYPOLEUCOIDES (A.REG.)									
QUERCUS HYPOLEUCOIDES (MATURE)									
QUERCUS RUGOSA (Y. REGEN.)									
QUERCUS RUGOSA (A. REGEN.)									
QUERCUS RUGOSA (MATURE)									
ACER GLABRUM									
ACER GRANDIDENTATUM								T	
CEANOTHUS FENDLERI						T			
CERCOCARPUS MONTANUS									
FRAXINUS PENNSYLVANICA									
HOLODISCUS DUMOSUS			3		P				
JUGLANS MAJOR									
LONICERA ARIZONICA									
POPULUS TREMULOIDES									
PTELEA ANGUSTIFOLIA									
QUERCUS ARIZONICA									
QUERCUS CHRYSOLEPIS									
QUERCUS EMORYI									
QUERCUS GAMBELII							T		
QUERCUS HYPOLEUCOIDES	P					P			
QUERCUS RUGOSA	T	T		P		2			
RHAMNUS BETULAEFOLIA					T	1			
RHUS AROMATICA									
ROBINIA NEOMEXICANA								.1	

TABLE 7 SOUTH OF MOGOLLON RIM: VEGETATION CHARACTERISTICS - PSEUDOTSUGA MENZIESII/MUHLENBERGIA VIRESCENS HT

PLOTS-PI:	M	M	M	M	M	M	M	M	J
-NO:	381	382	383	384	388	389	405	407	10
RUBUS NEOMEXICANUS									
SYMPHORICARPOS OREOPHILUS									
VITIS ARIZONICA									
YUCCA SCHOTTII									
AGROPYRON ARIZONICUM	P	T		T	2		5	P	2
BROMOPSIS CILIATA	1	1	.1	1	.1	.1		T	
BROMOPSIS PORTERI									
CAREX FOENEA									
KOELERIA MACRANTHA	.1	.1	T	T	2	T	1	.1	.5
MUHLENBERGIA LONGILIGULA									
MUHLENBERGIA MONTANA									
MUHLENBERGIA VIRESCENS	15	15	10	8	20	40	20	30	2
PANICUM BULBOSUM			4			T			
POA FENDLERIANA									
POA PRATENSIS									
ACHILLEA MILLEFOLIUM					4	.1			
ANTENNARIA NEGLECTA									
ARENARIA LANUGINOSA									
ARTEMISIA LUDOVICIANA									
CACALIA DECOMPOSITA									
COMANDRA UMBELLATA S. PALLIDA									
ERIGERON FORMOSISSIMUS									
ERIGERON NEOMEXICANUS									
ERIGERON ROSBYI	T						.1		
ERIGERON EXIMIUS									
EUPATORIUM HERBACEUM	T	.1		.1		T			
FRAGARIA AMERICANA		P			4				
FRAGARIA OVALIS									
GALIUM ASPERRIMUM					3				
GALIUM BOREALE									
GALIUM FENDLERI									.2
GERANIUM CAESPITOSUM									
GERANIUM RICHARDSONII		T					T		
HELENIUM HOOPESII									
LATHYRUS ARIZONICUS								T	
LATHYRUS GRAMINIFOLIUS					.1			T	
LIGUSTICUM PORTERI		P							
MACHAERANTHERA PARRYI									
PENSTEMON BARBATUS	1								
PSEUDOCYMOPTERUS MONTANUS	1	T	3	.1	1	T	1	T	1
PTERIDIUM AQUILINUM	T	1	T	2	5	2	P	.1	
SENECIO NEOMEXICANUS								T	1
SENECIO WOOTONI			T	T			T		.1
SMILACINA RACEMOSA									
THALICTRUM FENDLERI								T	
THERMOPSIS PINETORUM					15				
VICIA AMERICANA					T	2			
VIOLA CANADENSIS									

TREE DATA IN STEMS/375 SQ M. SHRUB, GRASS & HERB DATA AS COVER.
T = SPECIES PRESENT IN TRACE AMOUNTS.
P = SPECIES NOT IN THE PLOT BUT IN THE STAND.

TABLE 3 SOUTH OF MOGOLLON RIM: VEGETATION CHARACTERISTICS - PSEUDOTSUGA MENZIESII/QUERCUS GAMBELII HT

PLOTS-PI:	M	M	M	O	O	O	O	O	O	O
-NO:	378	390	982	14	37	38	56	62	64	69
ABIES CONCOLOR (YNG. REGEN.)		P	1							1
ABIES CONCOLOR (ADV. REGEN.)										
ABIES CONCOLOR (MATURE)										
ACER GRANDIDENTATUM (Y.REGEN.)										
ACER GRANDIDENTATUM (A.REGEN.)										
ACER GRANDIDENTATUM (MATURE)										
JUNIPERUS DEPPEANA (Y. REGEN.)			4	10						P
JUNIPERUS DEPPEANA (A. REGEN.)			3			P				
JUNIPERUS DEPPEANA (MATURE)										
PINUS PONDEROSA (YNG. REGEN.)	1	1	1					2	5	
PINUS PONDEROSA (ADV. REGEN.)		1	1	2				2	3	
PINUS PONDEROSA (MATURE)	2		8	2			P		1	
PINUS STROBIFORMIS (YNG. REG.)	3	2			2	3				
PINUS STROBIFORMIS (ADV. REG.)		P				6			P	
PINUS STROBIFORMIS (MATURE)	2									
POPULUS TREMULOIDES (Y. REG.)	3									
POPULUS TREMULOIDES (A. REG.)	P									
POPULUS TREMULOIDES (MATURE)										
PSEUDOTSUGA MENZIESII (Y. REG)	46	2	3	56	4	69	2	6	9	22
PSEUDOTSUGA MENZIESII (A. REG)	3	3	7	4	7	27	P	7	2	20
PSEUDOTSUGA MENZIESII (MATURE)	2	3	4	3	4	3	9	6	3	5
QUERCUS ARIZONICA (Y. REGEN.)										
QUERCUS ARIZONICA (A. REGEN.)										
QUERCUS ARIZONICA (MATURE)										
QUERCUS GAMBELII (Y. REGEN.)					10	2	19	10	7	3
QUERCUS GAMBELII (A. REGEN.)	4	72	18		9		25	10	2	19
QUERCUS GAMBELII (MATURE)				3		6	2	1	1	
QUERCUS HYPOLEUCOIDES (Y.REG.)										
QUERCUS HYPOLEUCOIDES (A.REG.)										
QUERCUS HYPOLEUCOIDES (MATURE)										
QUERCUS RUGOSA (Y. REGEN.)					8					1
QUERCUS RUGOSA (A. REGEN.)	2				3			P		1
QUERCUS RUGOSA (MATURE)										
ACER GLABRUM										
ACER GRANDIDENTATUM										
CEANOTHUS FENDLERI										
CERCOCARPUS MONTANUS				T						
FRAXINUS PENNSYLVANICA					10	6		1		.1
HOLODISCUS DUMOSUS	.1				T			1		
JUGLANS MAJOR	T		.1		4					
LONICERA ARIZONICA					T			T		
POPULUS TREMULOIDES	3									
PTELEA ANGUSTIFOLIA				.1	7			T		1
QUERCUS ARIZONICA										
QUERCUS CHRYSOLEPIS	.1		2							1
QUERCUS EMORYI										
QUERCUS GAMBELII	10	90	25	10	16	25	20	25	10	15
QUERCUS HYPOLEUCOIDES				T		T			.1	.1
QUERCUS RUGOSA	12			.1	12			1	T	1
RHAMNUS BETULAEFOLIA	4	7						1		
RHUS AROMATICA					2					
ROBINIA NEOMEXICANA	1	T	.1				5		25	

TABLE 3 SOUTH OF MOGOLLON RIM: VEGETATION CHARACTERISTICS - PSEUDOTSUGA MENZIESII/QUERCUS GAMBELII HT

PLOTS-PI:	M	M	M	D	D	D	D	D	D	D
-NO:	378	390	982	14	37	38	56	62	64	69
RUBUS NEOMEXICANUS					4				1	
SYMPHORICARPOS OREOPHILUS					3	7	25	1		T
VITIS ARIZONICA										
YUCCA SCHOTTII				T	T					
AGROPYRON ARIZONICUM	T	2		3						
BROMOPSIS CILIATA	1	3	.1	1		.1				
BROMOPSIS PORTERI					20	3	2	1	2	T
CAREX FOENEA										
KOELERIA MACRANTHA	1		1	.1					15	.1
MUHLENBERGIA LONGILIGULA			T	10					T	
MUHLENBERGIA MONTANA										
MUHLENBERGIA VIRESCENS	T	T		.1					T	
PANICUM BULBOSUM	.1			8					P	
POA FENDLERIANA	T		4		5	2	3	6	25	T
POA PRATENSIS										
ACHILLEA MILLEFOLIUM	1	6		.1	.3			.1	1	
ANTENNARIA NEGLECTA									T	T
ARENARIA LANUGINOSA									T	
ARTEMISIA LUDOVICIANA	P									
CACALIA DECOMPOSITA				1		P				
COMANDRA UMBELLATA S. PALLIDA										T
ERIGERON FORMOSISSIMUS										
ERIGERON NEOMEXICANUS							T			
ERIGERON RUSBYI									T	T
ERIGERON EXIMIUS										
EUPATORIUM HERBACEUM	1				.4	2		T	2	.1
FRAGARIA AMERICANA	2	3								
FRAGARIA UVALIS										
GALIUM ASPERRIMUM				.1	3	.1	1	4	1	
GALIUM BOREALE										
GALIUM FENDLERI					T	T		.1	.1	.1
GERANIUM CAESPITOSUM					.1		T			
GERANIUM RICHARDSONII										
HELENIUM HOOPESII										
LATHYRUS ARIZONICUS			.1	T		T			T	
LATHYRUS GRAMINIFOLIUS							T		.1	
LIGUSTICUM PORTERI	4	7								
ORTHOCHRYSUM PARRYI										
PENSTEMON BARBATUS	T					P		.1		T
PSEUDOCYMOPTERUS MONTANUS	T			1		P				
PTERIDIUM AQUILINUM	T	3								
SENECIO NEOMEXICANUS	.1	T					T			
SENECIO WOOTONI										
SMILACINA RACEMOSA	1				.1					
THALICTRUM FENDLERI	6	T	.1	.1	3	1		3	.1	.1
THERMOPSIS PINETORUM	2	40		T		P			P	
VICIA AMERICANA		.1				T	.1		.1	
VIOLA CANADENSIS	3									

TREE DATA IN STEMS/375 SQ M. SHRUB, GRASS & HERB DATA AS COVER.
T = SPECIES PRESENT IN TRACE AMOUNTS.
P = SPECIES NOT IN THE PLOT BUT IN THE STAND.

TABLE 9 SOUTH OF MOGOLLON RIM: VEGETATION CHARACTERISTICS - PSEUDOTSUGA MENZIESII/QUERCUS HYPOLEUCOIDES HT

	PLOTS-PI:	M	M
	-NJ:	376	403
ABIES CONCOLOR (YNG. REGEN.)			
ABIES CONCOLOR (ADV. REGEN.)		1	2
ABIES CONCOLOR (MATURE)			
ACER GRANDIDENTATUM (Y.REGEN.)			
ACER GRANDIDENTATUM (A.REGEN.)			
ACER GRANDIDENTATUM (MATURE)			
JUNIPERUS DEPPEANA (Y. REGEN.)		2	1
JUNIPERUS DEPPEANA (A. REGEN.)			1
JUNIPERUS DEPPEANA (MATURE)			
PINUS PONDEROSA (YNG. REGEN.)		2	
PINUS PONDEROSA (ADV. REGEN.)		3	
PINUS PONDEROSA (MATURE)		10	
PINUS STROBIFORMIS (YNG. REG.)		2	
PINUS STROBIFORMIS (ADV. REG.)			
PINUS STROBIFORMIS (MATURE)			
POPULUS TREMULOIDES (Y. REG.)			
POPULUS TREMULOIDES (A. REG.)			
POPULUS TREMULOIDES (MATURE)			
PSEUDOTSUGA MENZIESII (Y. REG)		5	
PSEUDOTSUGA MENZIESII (A. REG)		6	1
PSEUDOTSUGA MENZIESII (MATURE)		4	1
QUERCUS ARIZONICA (Y. REGEN.)			
QUERCUS ARIZONICA (A. REGEN.)		2	20
QUERCUS ARIZONICA (MATURE)			1
QUERCUS GAMBELII (Y. REGEN.)			
QUERCUS GAMBELII (A. REGEN.)			
QUERCUS GAMBELII (MATURE)			
QUERCUS HYPOLEUCOIDES (Y.REG.)			
QUERCUS HYPOLEUCOIDES (A.REG.)		19	8
QUERCUS HYPOLEUCOIDES (MATURE)			
QUERCUS RUGOSA (Y. REGEN.)			
QUERCUS RUGOSA (A. REGEN.)			
QUERCUS RUGOSA (MATURE)			
ACER GLABRUM			
ACER GRANDIDENTATUM			
CEANOTHUS FENDLERI		T	
CERCOCARPUS MONTANUS			.1
FRAXINUS PENNSYLVANICA			
HOLODISCUS DUMOSUS			
JUGLANS MAJOR			
LONICERA ARIZONICA			
POPULUS TREMULOIDES			
PTELEA ANGUSTIFOLIA			
QUERCUS ARIZONICA		8	40
QUERCUS CHRYSOLEPIS			
QUERCUS EMORYI			
QUERCUS GAMBELII		T	
QUERCUS HYPOLEUCOIDES		20	20
QUERCUS RUGOSA		T	3
RHAMNUS BETULAEFOLIA			
RHUS AROMATICA			2
ROBINIA NEOMEXICANA			

TABLE 3 SOUTH OF MOGOLLON RIM: VEGETATION CHARACTERISTICS - PSEUDOTSUGA MENZIESII/QUERCUS HYPOLEUCOIDES HT

	PLOTS-PI:	M	M
	-NO:	376	403
RUBUS NEOMEXICANUS			
SYMPHORICARPOS OREOPHILUS		T	
VITIS ARIZONICA			
YUCCA SCHOTTII			1
AGROPYRON ARIZONICUM			T
BROMOPSIS CILIATA			
BROMOPSIS PORTERI		T	T
CAREX FOENEA			
KOELERIA MACRANTHA		.1	P
MUHLENBERGIA LONGILIGULA		15	50
MUHLENBERGIA MONTANA			
MUHLENBERGIA VIRESCENS		T	
PANICUM BULBOSUM			2
POA FENDLERIANA			.1
POA PRATENSIS			
ACHILLEA MILLEFOLIUM			
ANTENNARIA NEGLECTA			
ARENARIA LANUGINOSA			
ARTEMISIA LUDOVICIANA		T	.1
CACALIA DECOMPOSITA			
COMANDRA UMBELLATA S. PALLIDA			T
ERIGERON FORMOSISSIMUS			
ERIGERON NEOMEXICANUS			T
ERIGERON RUSBYI			
ERIGERON EXIMIUS			
EUPATORIUM HERBACEUM		T	T
FRAGARIA AMERICANA			
FRAGARIA UVALIS			
GALIUM ASPERRIMUM			
GALIUM BOREALE			
GALIUM FENDLERI			
GERANIUM CAESPITOSUM			
GERANIUM RICHARDSONII		P	
HELENIUM HOOPESII			
LATHYRUS ARIZONICUS			
LATHYRUS GRAMINIFOLIUS			
LIGUSTICUM PORTERI			
OREOCHRYSUM PARRYI			
PENSTEMON BARBATUS		.1	
PSEUDOCYMOPTERUS MONTANUS		.1	
PTERIDIUM AQUILINUM			
SENECIO NEOMEXICANUS		.1	
SENECIO WOOTONI			
SMILACINA RACEMOSA			
THALICTRUM FENDLERI		1	
THERMOPSIS PINETORUM			
VICIA AMERICANA			
VIOLA CANADENSIS			

TREE DATA IN STEMS/375 SQ M. SHRUB, GRASS & HERB DATA AS COVER.
T = SPECIES PRESENT IN TRACE AMOUNTS.
P = SPECIES NOT IN THE PLOT BUT IN THE STAND.

TABLE 37 SOUTH OF MOGOLLON RIM: VEGETATION CHARACTERISTICS -
ABIES CONCOLOR/CAREX FOENEA HT

	PLOTS-PI:	M	M
	-NJ:	393	395
ABIES CONCOLOR (YNG. REGEN.)		7	35
ABIES CONCOLOR (ADV. REGEN.)			1
ABIES CONCOLOR (MATURE)			
ACER GRANDIDENTATUM (Y.REGEN.)			
ACER GRANDIDENTATUM (A.REGEN.)			
ACER GRANDIDENTATUM (MATURE)			
JUNIPERUS DEPPEANA (Y. REGEN.)			
JUNIPERUS DEPPEANA (A. REGEN.)			
JUNIPERUS DEPPEANA (MATURE)			
PINUS PONDEROSA (YNG. REGEN.)		6	
PINUS PONDEROSA (ADV. REGEN.)		5	
PINUS PONDEROSA (MATURE)		4	
PINUS STROBIFORMIS (YNG. REG.)		10	4
PINUS STROBIFORMIS (ADV. REG.)		21	1
PINUS STROBIFORMIS (MATURE)		2	3
POPULUS TREMULOIDES (Y. REG.)			
POPULUS TREMULOIDES (A. REG.)		9	3
POPULUS TREMULOIDES (MATURE)			
PSEUDOTSUGA MENZIESII (Y. REG)		29	3
PSEUDOTSUGA MENZIESII (A. REG)		10	2
PSEUDOTSUGA MENZIESII (MATURE)		1	1
QUERCUS ARIZONICA (Y. REGEN.)			
QUERCUS ARIZONICA (A. REGEN.)			
QUERCUS ARIZONICA (MATURE)			
QUERCUS GAMBELII (Y. REGEN.)			
QUERCUS GAMBELII (A. REGEN.)			
QUERCUS GAMBELII (MATURE)			
QUERCUS HYPOLEUCOIDES (Y.REG.)			
QUERCUS HYPOLEUCOIDES (A.REG.)			
QUERCUS HYPOLEUCOIDES (MATURE)			
QUERCUS RUGOSA (Y. REGEN.)			
QUERCUS RUGOSA (A. REGEN.)			
QUERCUS RUGOSA (MATURE)			
ACER GLABRUM			8
ACER GRANDIDENTATUM			
CEANOTHUS FENDLERI			
CERCOCARPUS MONTANUS			
FRAXINUS PENNSYLVANICA			
HOLODISCUS DUMOSUS			
JUGLANS MAJOR			
JUNIPERUS ARIZONICA			
POPULUS TREMULOIDES		.1	T
PTELEA ANGUSTIFOLIA			
QUERCUS ARIZONICA			
QUERCUS CHRYSOLEPIS			
QUERCUS EMORYI			
QUERCUS GAMBELII			
QUERCUS HYPOLEUCOIDES			
QUERCUS RUGOSA			
RHAMNUS BETULAEFOLIA			
RHUS AROMATICA			
ROBINIA NEOMEXICANA			

TABLE 37 SOUTH OF MOGOLLON RIM: VEGETATION CHARACTERISTICS - ABIES CONCOLOR/CAREX FOENEA HT

	PLOTS-PI:	M	M
	-NJ:	393	395
ROBUS NEOMEXICANUS			
SYMPHORICARPOS OREOPHILUS			
VITIS ARIZONICA			
YUCCA SCHOTTII			
AGROPYRON ARIZONICUM			2
BROMOPSIS CILIATA		8	20
BROMOPSIS PORTERI			
CAREX FOENEA		60	80
KOELERIA MACRANTHA			
MUHLENBERGIA LONGILIGULA			
MUHLENBERGIA MONTANA		.1	
MUHLENBERGIA VIRESCENS			
PANICUM BULBOSUM			
POA FENDLERIANA			T
POA PRATENSIS		1	8
ACHILLEA MILLEFOLIUM		P	2
ANTENNARIA NEGLECTA			
ARENARIA LANUGINOSA			
ARTEMISIA LUDOVICIANA			
CACALIA DECOMPOSITA			
COMANDRA UMBELLATA S. PALLIDA			
ERIGERON FORMOSISSIMUS			1
ERIGERON NEOMEXICANUS			
ERIGERON RUSBYI			
ERIGERON EXIMIUS			
EUPATORIUM HERBACEUM			
FRAGARIA AMERICANA			.1
FRAGARIA OVALIS		T	1
GALIUM ASPERRINUM			
GALIUM BOREALE			
GALIUM FENDLERI			
GERANIUM CAESPITOSUM			
GERANIUM RICHARDSONII		1	4
HELENIUM HOOPESII		P	1
LATHYRUS ARIZONICUS		T	T
LATHYRUS GRAMINIFOLIUS			
LIGUSTICUM PORTERI			
OREOCHRYSUM PARRYI			
PENSTEMON BARBATUS			
PSEUDOCYMOPTERUS MONTANUS		1	.1
PTERIDIUM AQUILINUM		2	4
SENECIO NEOMEXICANUS			
SENECIO WOOTONI		3	2
SMILACINA RACEMOSA			
THALICTRUM FENDLERI			.1
THERMOPSIS PINETORUM			
VICIA AMERICANA			
VIOLA CANADENSIS			

TREE DATA IN STEMS/.375 SQ M. SHRUB, GRASS & HERB DATA AS COVER.
T = SPECIES PRESENT IN TRACE AMOUNTS.
P = SPECIES NOT IN THE PLOT BUT IN THE STAND.

TABLE 37 SOUTH OF MOGOLLON RIM: VEGETATION CHARACTERISTICS - PSEUDOTSUGA MENZIESII/QUERCUS RUGOSA HT

PLOTS-PI: 0
-NJ: 78

ABIES CONCOLOR (YNG. REGEN.)	
ABIES CONCOLOR (ADV. REGEN.)	
ABIES CONCOLOR (MATURE)	
ACER GRANDIDENTATUM (Y.REGEN.)	
ACER GRANDIDENTATUM (A.REGEN.)	
ACER GRANDIDENTATUM (MATURE)	
JUNIPERUS DEPPEANA (Y. REGEN.)	
JUNIPERUS DEPPEANA (A. REGEN.)	
JUNIPERUS DEPPEANA (MATURE)	
PINUS PONDEROSA (YNG. REGEN.)	1
PINUS PONDEROSA (ADV. REGEN.)	4
PINUS PONDEROSA (MATURE)	1
PINUS STROBIFORMIS (YNG. REG.)	2
PINUS STROBIFORMIS (ADV. REG.)	10
PINUS STROBIFORMIS (MATURE)	2
POPULUS TREMULOIDES (Y. REG.)	
POPULUS TREMULOIDES (A. REG.)	
POPULUS TREMULOIDES (MATURE)	
PSEUDOTSUGA MENZIESII (Y. REG)	1
PSEUDOTSUGA MENZIESII (A. REG)	4
PSEUDOTSUGA MENZIESII (MATURE)	7
QUERCUS ARIZONICA (Y. REGEN.)	
QUERCUS ARIZONICA (A. REGEN.)	
QUERCUS ARIZONICA (MATURE)	
QUERCUS GAMBELII (Y. REGEN.)	
QUERCUS GAMBELII (A. REGEN.)	
QUERCUS GAMBELII (MATURE)	
QUERCUS HYPOLEUCOIDES (Y.REG.)	
QUERCUS HYPOLEUCOIDES (A.REG.)	
QUERCUS HYPOLEUCOIDES (MATURE)	
QUERCUS RUGOSA (Y. REGEN.)	55
QUERCUS RUGOSA (A. REGEN.)	
QUERCUS RUGOSA (MATURE)	
ACER GLABRUM	
ACER GRANDIDENTATUM	
CEANOTHUS FENDLERI	
CERCOCARPUS MONTANUS	
FRAXINUS PENNSYLVANICA	
HOLODISCUS DUMOSUS	
JUGLANS MAJOR	
LONICERA ARIZONICA	
POPULUS TREMULOIDES	
PTELEA ANGUSTIFOLIA	
QUERCUS ARIZONICA	
QUERCUS CHRYSOLEPIS	
QUERCUS EMORYI	
QUERCUS GAMBELII	
QUERCUS HYPOLEUCOIDES	1
QUERCUS RUGOSA	40
RHAMNUS BETULAEFOLIA	
RHUS AROMATICA	
ROBINIA NEOMEXICANA	

TABLE 07 SOUTH OF MOGOLLON RIM: VEGETATION CHARACTERISTICS -
PSEUDOTSUGA MENZIESII/QUERCUS RUGOSA HT

PLOTS-PI: 0
-NJ: 78

RUBUS NEOMEXICANUS	
SYMPHORICARPOS OREOPHILUS	
VITIS ARIZONICA	
YUCCA SCHOTTII	
AGROPYRON ARIZONICUM	
BROMOPSIS CILIATA	
BROMOPSIS PORTERI	
CAREX FOENEA	
KOELERIA MACRANTHA	T
MUHLENBERGIA LONGILIGULA	.1
MUHLENBERGIA MONTANA	T
MUHLENBERGIA VIRESCENS	
PANICUM BULBOSUM	
POA FENDLERIANA	
POA PRATENSIS	
ACHILLEA MILLEFOLIUM	
ANTENNARIA NEGLECTA	
ARENARIA LANUGINOSA	T
ARTEMISIA LUDOVICIANA	P
CACALIA DECOMPOSITA	
COMANDRA UMBELLATA S. PALLIDA	
ERIGERON FORMOSISSIMUS	
ERIGERON NEOMEXICANUS	
ERIGERON RUSBYI	
ERIGERON EXIMIUS	
EUPATORIUM HERBACEUM	
FRAGARIA AMERICANA	
FRAGARIA UVALIS	
GALIUM ASPERRIMUM	
GALIUM BOREALE	
GALIUM FENDLERI	
GERANIUM CAESPITOSUM	
GERANIUM RICHARDSONII	
HELENIUM HOOPESII	
LATHYRUS ARIZONICUS	
LATHYRUS GRAMINIFOLIUS	T
LIGUSTICUM PORTERI	
ORTHOCHRYSUM PARRYI	
PENSTEMON BARBATUS	T
PSEUDOCYMOPTERUS MONTANUS	
PTERIDIUM AQUILINUM	
SENECIO NEOMEXICANUS	
SENECIO WOOTONI	
SMILACINA RACEMOSA	
THALICTRUM FENDLERI	
THERMOPSIS PINETORUM	
VICIA AMERICANA	T
VIOLA CANADENSIS	

TREE DATA IN STEMS/375 SQ M. SHRUB, GRASS & HERB DATA AS COVER.
T = SPECIES PRESENT IN TRACE AMOUNTS.
= SPECIES NOT IN THE PLOT BUT IN THE STAND.

TABLE 31 SOUTH OF MOGOLLON RIM: VEGETATION CHARACTERISTICS - PSEUDOTSUGA MENZIESII/QUERCUS ARIZONICA HT

PLOTS-PI: 4
-NO: 984

ABIES CONCOLOR (YNG. REGEN.)	
ABIES CONCOLOR (ADV. REGEN.)	
ABIES CONCOLOR (MATURE)	
ACER GRANDIDENTATUM (Y.REGEN.)	
ACER GRANDIDENTATUM (A.REGEN.)	
ACER GRANDIDENTATUM (MATURE)	
JUNIPERUS DEPPEANA (Y. REGEN.)	
JUNIPERUS DEPPEANA (A. REGEN.)	P
JUNIPERUS DEPPEANA (MATURE)	
PINUS PONDEROSA (YNG. REGEN.)	
PINUS PONDEROSA (ADV. REGEN.)	6
PINUS PONDEROSA (MATURE)	6
PINUS STROBIFORMIS (YNG. REG.)	
PINUS STROBIFORMIS (ADV. REG.)	
PINUS STROBIFORMIS (MATURE)	
POPULUS TREMULOIDES (Y. REG.)	
POPULUS TREMULOIDES (A. REG.)	
POPULUS TREMULOIDES (MATURE)	
PSEUDOTSUGA MENZIESII (Y. REG)	7
PSEUDOTSUGA MENZIESII (A. REG)	7
PSEUDOTSUGA MENZIESII (MATURE)	3
QUERCUS ARIZONICA (Y. REGEN.)	
QUERCUS ARIZONICA (A. REGEN.)	11
QUERCUS ARIZONICA (MATURE)	2
QUERCUS GAMBELII (Y. REGEN.)	
QUERCUS GAMBELII (A. REGEN.)	
QUERCUS GAMBELII (MATURE)	
QUERCUS HYPOLEUCOIDES (Y.REG.)	
QUERCUS HYPOLEUCOIDES (A.REG.)	
QUERCUS HYPOLEUCOIDES (MATURE)	
QUERCUS RUGOSA (Y. REGEN.)	
QUERCUS RUGOSA (A. REGEN.)	
QUERCUS RUGOSA (MATURE)	
ACER GLABRUM	
ACER GRANDIDENTATUM	
CEANOTHUS FENDLERI	
CERCOCARPUS MONTANUS	
FRAXINUS PENNSYLVANICA	
HOLODISCUS DUMOSUS	
JUGLANS MAJOR	
LONICERA ARIZONICA	
POPULUS TREMULOIDES	
PTELEA ANGUSTIFOLIA	
QUERCUS ARIZONICA	15
QUERCUS CHRYSOLEPIS	.1
QUERCUS EMORYI	1
QUERCUS GAMBELII	
QUERCUS HYPOLEUCOIDES	
QUERCUS RUGOSA	
RHAMNUS BETULAEFOLIA	
RHUS AROMATICA	
ROBINIA NEOMEXICANA	

TABLE 37 SOUTH OF MOGOLLON RIM: VEGETATION CHARACTERISTICS -
PSEUDOTSUGA MENZIESII/QUERCUS ARIZONICA HT
PLOTS-PI: 4
-ND: 984

RUBUS NEOMEXICANUS	
SYMPHORICARPOS OREOPHILUS	
VITIS ARIZONICA	
YUCCA SCHOTTII	
AGROPYRON ARIZONICUM	
BROMOPSIS CILIATA	
BROMOPSIS PORTERI	
CAREX FOENEA	
KOELERIA MACRANTHA	.2
MUHLENBERGIA LONGILIGULA	2
MUHLENBERGIA MONTANA	
MUHLENBERGIA VIRESCENS	
PANICUM BULBOSUM	
POA FENDLERIANA	1
POA PRATENSIS	
ACHILLEA MILLEFOLIUM	
ANTENNARIA NEGLECTA	
ARENARIA LANUGINOSA	
ARTEMISIA LUDOVICIANA	
CACALIA DECOMPOSITA	
COMANDRA UMBELLATA S. PALLIDA	.1
ERIGERON FORMOSISSIMUS	
ERIGERON NEOMEXICANUS	
ERIGERON RUSBYI	
ERIGERON EXIMIUS	
EUPATORIUM HERBACEUM	
FRAGARIA AMERICANA	
FRAGARIA UVALIS	
GALIUM ASPERRIMUM	
GALIUM BOREALE	
GALIUM FENDLERI	
GERANIUM CAESPITOSUM	
GERANIUM RICHARDSONII	
HELENIUM HOOPESII	
LATHYRUS ARIZONICUS	
LATHYRUS GRAMINIFOLIUS	
LIGUSTICUM PORTERI	
ORTHOCHRYSUM PARRYI	
PENSTEMON BARBATUS	
PSEUDOCYMOPTERUS MONTANUS	.1
PTERIDIUM AQUILINUM	
SENECIO NEOMEXICANUS	.1
SENECIO WOOTONI	
SMILACINA RACEMOSA	
THALICTRUM FENDLERI	
THERMOPSIS PINETORUM	
VICIA AMERICANA	
VIOLA CANADENSIS	

TREE DATA IN STEMS/375 SQ M. SHRUB, GRASS & HERB DATA AS COVER.
T = SPECIES PRESENT IN TRACE AMOUNTS.
P = SPECIES NOT IN THE PLOT BUT IN THE STAND.

TABLE 37 SOUTH OF MOGOLLON RIM: VEGETATION CHARACTERISTICS - PSEUDOTSUGA MENZIESII/ACER GRANDIDENTATUM HT

	PLOTS-PI:	0	0
	-NO:	83	84
ABIES CONCOLOR (YNG. REGEN.)			
ABIES CONCOLOR (ADV. REGEN.)			
ABIES CONCOLOR (MATURE)			
ACER GRANDIDENTATUM (Y.REGEN.)		51	53
ACER GRANDIDENTATUM (A.REGEN.)		26	14
ACER GRANDIDENTATUM (MATURE)			
JUNIPERUS DEPPEANA (Y. REGEN.)		2	
JUNIPERUS DEPPEANA (A. REGEN.)			
JUNIPERUS DEPPEANA (MATURE)			
PINUS PONDEROSA (YNG. REGEN.)			
PINUS PONDEROSA (ADV. REGEN.)		1	
PINUS PONDEROSA (MATURE)			
PINUS STROBIFORMIS (YNG. REG.)			
PINUS STROBIFORMIS (ADV. REG.)			
PINUS STROBIFORMIS (MATURE)			
POPULUS TREMULOIDES (Y. REG.)			
POPULUS TREMULOIDES (A. REG.)			
POPULUS TREMULOIDES (MATURE)			
PSEUDOTSUGA MENZIESII (Y. REG)		5	4
PSEUDOTSUGA MENZIESII (A. REG)		1	2
PSEUDOTSUGA MENZIESII (MATURE)		4	3
QUERCUS ARIZONICA (Y. REGEN.)			
QUERCUS ARIZONICA (A. REGEN.)			
QUERCUS ARIZONICA (MATURE)		5	
QUERCUS GAMBELII (Y. REGEN.)			2
QUERCUS GAMBELII (A. REGEN.)			
QUERCUS GAMBELII (MATURE)			
QUERCUS HYPOLEUCOIDES (Y.REG.)		3	
QUERCUS HYPOLEUCOIDES (A.REG.)		1	
QUERCUS HYPOLEUCOIDES (MATURE)			
QUERCUS RUGOSA (Y. REGEN.)		4	4
QUERCUS RUGOSA (A. REGEN.)		1	3
QUERCUS RUGOSA (MATURE)			
ACER GLABRUM			
ACER GRANDIDENTATUM		80	50
CLANOTHUS FENDLERI			
CERCOCARPUS MONTANUS			
FRAXINUS PENNSYLVANICA		4	.1
HOLODISCUS DUMOSUS			2
JUGLANS MAJOR			
LONICERA ARIZONICA		1	4
POPULUS TREMULOIDES			
PTELEA ANGUSTIFOLIA			3
QUERCUS ARIZONICA		15	
QUERCUS CHRYSOLEPIS		T	10
QUERCUS EMORYI			
QUERCUS GAMBELII		P	2
QUERCUS HYPOLEUCOIDES		1	
QUERCUS RUGOSA		5	5
RHAMNUS BETULAEFOLIA		3	
RHUS AROMATICA		.1	
ROBINIA NEOMEXICANA		2	

TABLE 37 SOUTH OF MOGOLLON RIM: VEGETATION CHARACTERISTICS - PSEUDOTSUGA MENZIESII/ACER GRADIDENTATUM HT

PLOTS-PI:	D	D
-NO:	83	84
RUBUS NEOMEXICANUS		5
SYMPHORICARPOS OREOPHILUS		3
VITIS ARIZONICA	T	
YUCCA SCHOTTII		
AGROPYRON ARIZONICUM		
BROMOPSIS CILIATA	.1	.1
BROMOPSIS PORTERI		
CAREX FOENEA		
KOELERIA MACRANTHA		
MUHLENBERGIA LONGILIGULA		
MUHLENBERGIA MONTANA		
MUHLENBERGIA VIRESCENS		
PANICUM BULBOSUM	.1	
POA FENDLERIANA		25
POA PRATENSIS		
ACHILLEA MILLEFOLIUM		
ANTENNARIA NEGLECTA		
ARENARIA LANUGINOSA		
ARTEMISIA LUDOVICIANA		
CACALIA DECOMPOSITA		
COMANDRA UMBELLATA S. PALLIDA		
ERIGERON FORMOSISSIMUS		
ERIGERON NEOMEXICANUS		.1
ERIGERON RUSBYI		
ERIGERON EXIMIUS		
EUPATORIUM HERBACEUM		T
FRAGARIA AMERICANA		
FRAGARIA UVALIS		
GALIUM ASPERRIMUM	2	1
GALIUM BOREALE		
GALIUM FENDLERI		
GERANIUM CAESPITOSUM	.1	
GERANIUM RICHARDSONII		
HELENIUM HOOPESII		
LATHYRUS ARIZONICUS		
LATHYRUS GRAMINIFOLIUS		
LIGUSTICUM PORTERI		
ORTHOCHRYSUM PARRYI		
PENSTEMON BARBATUS		
PSEUDOCYMOPTERUS MONTANUS		
PTERIDIUM AQUILINUM		
SENECIO NEOMEXICANUS		
SENECIO WOOTONI		
SMILACINA RACEMOSA		
THALICTRUM FENDLERI		.1
THERMOPSIS PINETORUM		
VICIA AMERICANA		T
VIOLA CANADENSIS		

TREE DATA IN STEMS/375 SQ M. SHRUB, GRASS & HERB DATA AS COVER.
T = SPECIES PRESENT IN TRACE AMOUNTS.
P = SPECIES NOT IN THE PLOT BUT IN THE STAND.

VEGETATION CHARACTERISTICS FOR HABITAT TYPES

FORESTS SOUTH OF THE MOGOLLON RIM: PIPO, PIVEN, AND PILE SERIES

TABLE 10 SOUTH OF MOGOLLON RIM: VEGETATION CHARACTERISTICS - PINUS PONDEROSA/MUHLENBERGIA VIRESCENS HT

PLOTS-PI:	M	D	D	D	D
-NO:	379	21	33	76	82
JUNIPERUS DEPPEANA (Y. REGEN.)		4		1	1
JUNIPERUS DEPPEANA (A. REGEN.)					1
JUNIPERUS DEPPEANA (MATURE)					1
JUNIPERUS ERYTHROCARPA (Y.RG.)					
JUNIPERUS ERYTHROCARPA (A.RG.)					
JUNIPERUS ERYTHROCARPA (MAT.)					
PINUS DISCOLOR (YNG. REGEN.)					12
PINUS DISCOLOR (ADV. REGEN.)					
PINUS DISCOLOR (MATURE)					
PINUS ENGELMANNII (YNG. REGEN)					
PINUS ENGELMANNII (ADV. REGEN)					
PINUS ENGELMANNII (MATURE)					
PINUS LEIOPHYLLA (YNG. REGEN.)					
PINUS LEIOPHYLLA (ADV. REGEN.)					
PINUS LEIOPHYLLA (MATURE)					
PINUS PONDEROSA (YNG. REGEN.)	15	2	53	4	12
PINUS PONDEROSA (ADV. REGEN.)	38	14	20	7	10
PINUS PONDEROSA (MATURE)	2	13	5	10	3
PINUS STROBIFORMIS (YNG. REG.)	1		15	7	
PINUS STROBIFORMIS (ADV. REG.)			2	2	
PINUS STROBIFORMIS (MATURE)					
PSEUDOTSUGA MENZIESII (Y. REG)	2		27	1	
PSEUDOTSUGA MENZIESII (A. REG)	10				P
PSEUDOTSUGA MENZIESII (MATURE)					
QUERCUS ARIZONICA (Y. REGEN.)					
QUERCUS ARIZONICA (A. REGEN.)					
QUERCUS ARIZONICA (MATURE)					
QUERCUS EMORYI (Y. REGEN.)					
QUERCUS EMORYI (A. REGEN.)					
QUERCUS EMORYI (MATURE)					
QUERCUS GAMBELII (Y. REGEN.)					
QUERCUS GAMBELII (A. REGEN.)				19	
QUERCUS GAMBELII (MATURE)					
QUERCUS HYPOLEUCOIDES (Y.REG.)					1
QUERCUS HYPOLEUCOIDES (A.REG.)					2
QUERCUS HYPOLEUCOIDES (MATURE)					1
QUERCUS RUGOSA (Y. REGEN.)				2	
QUERCUS RUGOSA (A. REGEN.)				1	
QUERCUS RUGOSA (MATURE)					
AGAVE PALMERI					
AGAVE PARRYI					
ARBUTUS ARIZONICA					
ARCTOSTAPHYLOS PRINGLEI					
ARCTOSTAPHYLOS PUNGENS					
CEANOTHUS FENDLERI	T			T	
CERCOCARPUS MONTANUS					
FRAXINUS PENNSYLVANICA					
GARRYA WRIGHTII					
JUGLANS MAJOR					
LONICERA ARIZONICA					
NOLINA MICROCARPA					
PLATANUS WRIGHTII					

TABLE 10 SOUTH OF MOGOLLON RIM: VEGETATION CHARACTERISTICS - PINUS PONDEROSA/MUHLENBERGIA VIRESCENS HT

	PLOTS-PI:	M	D	D	D	D
	-NO:	379	21	33	76	82
PRUNUS SEROTINA SSP. VIRENS						
QUERCUS ARIZONICA						
QUERCUS EMORYI						
QUERCUS GAMBELII					8	
QUERCUS HYPOLEUCOIDES		2	T			5
QUERCUS RUGOSA		10	T		2	
QUERCUS TOUMEYI						
RHAMNUS BETULAEFOLIA		1				
RHUS CHORIOPHYLLA						
RHUS AROMATICA						
ROBINIA NEOMEXICANA						
SYMPHORICARPOS OREOPHILUS						
VITIS ARIZONICA						
YUCCA SCHOTTII						
ANDROPOGON CIRRATUS						
ARISTIDA ORCUTTIANA						
BLEPHARONEURON TRICHOLEPIS					T	T
BOUTELOUA CURTIPENDULA						
BOUTELOUA GRACILIS						
BROMOPSIS CILIATA		T	.1			T
BROMOPSIS PORTERI					T	
KOELERIA MACRANTHA			T		.1	3
MUHLENBERGIA EMERSLEYI						
MUHLENBERGIA LONGILIGULA		.1	.1			2
MUHLENBERGIA MONTANA					T	
MUHLENBERGIA VIRESCENS		8	10	20	6	35
PANICUM BULBOSUM						
PTYCHAETIUM FIMBRIATUM						
POA FENDLERIANA		T				
STIPA PRINGLEI			.1		T	T
ARENARIA LANUGINOSA				T	T	T
ARTEMISIA LUDOVICIANA						
BAHIA DISSECTA						
ERIOGELLIA GRANDIFLORA		T				
CHEILANTHES FENDLERI						
COMANDRA UMBELLATA S. PALLIDA						
DESMODIUM ROSEI				T		
ERIGERON NEOMEXICANUS					T	
GALIUM ASPERRINUM						
GALIUM FENDLERI					T	
GERANIUM CAESPITOSUM		T				
HEDEOMA HYSSOPIFOLIUM				T	T	T
HIERACIUM FENDLERI			T	.1	.1	T
PENSTEMON BARBATUS					.1	
PHASEOLUS WRIGHTII					T	
SENECIO NEOMEXICANUS		P		T	T	
SOLIDAGO SPARSIFLORA						.1
SOLIDAGO WRIGHTII					.1	T

TREE DATA IN STEMS/375 SQ M. SHRUB, GRASS & HERB DATA AS COVER.
T = SPECIES PRESENT IN TRACE AMOUNTS.
P = SPECIES NOT IN THE PLOT BUT IN THE STAND.

TABLE 11 SOUTH OF MOGOLLON RIM: VEGETATION CHARACTERISTICS - PINUS PONDEROSA/QUERCUS GAMBELII HT

PLOTS-PI:	D	D	D	D	D
-ND:	51	53	59	74	77
JUNIPERUS DEPPEANA (Y. REGEN.)	2				
JUNIPERUS DEPPEANA (A. REGEN.)	P		2		
JUNIPERUS DEPPEANA (MATURE)					
JUNIPERUS ERYTHROCARPA (Y.RG.)					
JUNIPERUS ERYTHROCARPA (A.RG.)					
JUNIPERUS ERYTHROCARPA (MAT.)					
PINUS DISCOLOR (YNG. REGEN.)	35	19			
PINUS DISCOLOR (ADV. REGEN.)	5	8			
PINUS DISCOLOR (MATURE)					
PINUS ENGELMANNII (YNG. REGEN)					
PINUS ENGELMANNII (ADV. REGEN)					
PINUS ENGELMANNII (MATURE)					
PINUS LEIOPHYLLA (YNG. REGEN.)					
PINUS LEIOPHYLLA (ADV. REGEN.)					
PINUS LEIOPHYLLA (MATURE)					
PINUS PONDEROSA (YNG. REGEN.)	1	2	P	2	6
PINUS PONDEROSA (ADV. REGEN.)	5	P	4	6	9
PINUS PONDEROSA (MATURE)	7	2	11	4	8
PINUS STROBIFORMIS (YNG. REG.)				1	
PINUS STROBIFORMIS (ADV. REG.)					
PINUS STROBIFORMIS (MATURE)					
PSEUDOTSUGA MENZIESII (Y. REG)				2	
PSEUDOTSUGA MENZIESII (A. REG)					
PSEUDOTSUGA MENZIESII (MATURE)					
QUERCUS ARIZONICA (Y. REGEN.)					
QUERCUS ARIZONICA (A. REGEN.)					
QUERCUS ARIZONICA (MATURE)					
QUERCUS EMORYI (Y. REGEN.)					
QUERCUS EMORYI (A. REGEN.)					
QUERCUS EMORYI (MATURE)					
QUERCUS GAMBELII (Y. REGEN.)	3		26	36	
QUERCUS GAMBELII (A. REGEN.)	2	18	27		5
QUERCUS GAMBELII (MATURE)	4	3			3
QUERCUS HYPOLEUCOIDES (Y.REG.)	9	2		2	
QUERCUS HYPOLEUCOIDES (A.REG.)					
QUERCUS HYPOLEUCOIDES (MATURE)		P			
QUERCUS RUGOSA (Y. REGEN.)				43	
QUERCUS RUGOSA (A. REGEN.)	1	1		3	
QUERCUS RUGOSA (MATURE)					
AGAVE PALMERI					
AGAVE PARRYI	.1				
ARBUTUS ARIZONICA					
ARCTOSTAPHYLOS PRINGLEI					
ARCTOSTAPHYLOS PUNGENS					
CEANOTHUS FENDLERI					
CERCOCARPUS MONTANUS	1				
FRAXINUS PENNSYLVANICA	2	5			
GARRYA WRIGHTII	T				
JUGLANS MAJOR		8			
LONICERA ARIZONICA					
NOLINA MICROCARPA	.1				
PLATANUS WRIGHTII					

TABLE 11 SOUTH OF MOGOLLON RIM: VEGETATION CHARACTERISTICS - PINUS PONDEROSA/QUERCUS GAMBELII HT

PLOTS-PI:	D	D	D	D	D
-NO:	51	53	59	74	77
PRUNUS SEROTINA SSP. VIRENS					
QUERCUS ARIZONICA			T		
QUERCUS EMORYI			.1		
QUERCUS GAMBELII	10	69	30	15	20
QUERCUS HYPOLEUCOIDES	2	5		1	
QUERCUS RUGOSA	2	.4		30	T
QUERCUS TURNEYI					
RHAMNUS BETULAEFOLIA	.1	.6			
RHUS CHORIOPHYLLA					
RHUS AROMATICA	2	.3			
ROBINIA NEOMEXICANA		8	2	20	
SYMPHORICARPOS OREOPHILUS	7	33	.1		.1
VITIS ARIZONICA					
YUCCA SCHOTTII					
ANDROPOGON CIRRATUS					
ARISTIDA PURPURIANA					
BLEPHARONEURON TRICHOLEPIS					.1
BOUTELOUA CURTIPENDULA	T				
BOUTELOUA GRACILIS					
BROMOPSIS CILIATA	3				8
BROMOPSIS PORTERI		3		.1	
KOELERIA MACRANTHA	5	.1	.1	1	2
MUHLENBERGIA EMERSLEYI					
MUHLENBERGIA LONGILIGULA	8	8			
MUHLENBERGIA MONTANA					.1
MUHLENBERGIA VIRESCENS				3	
PANICUM BULBOSUM	2				
PIPTOCHAETIUM FIMBRIATUM					
POA FENDLERIANA	10	5	.1	1	T
STIPA PRINGLEI					1
ARENARIA LANUGINOSA					T
ARTEMISIA LUDOVICIANA	1				3
BAHIA DISSECTA					
BRICKELLIA GRANDIFLORA	.1	.3			
CHEILANTHES FENDLERI	T		.1		
CUMANDRA UMBELLATA S. PALLIDA					
DESMODIUM ROSEI					
ERIGERON NEOMEXICANUS				T	
GALIUM ASPERRIMUM	.1	2			P
GALIUM FENDLERI			.1	T	
GERANIUM CAESPITOSUM	1	.5		T	T
HEDEOMA HYSSOPIFOLIUM				.1	
HIERACIUM FENDLERI					
PENSTEMON BARBATUS					T
PHASEOLUS WRIGHTII					
SENECIO NEOMEXICANUS	T	T			
SOLIDAGO SPARSIFLORA	1	1	2		5
SOLIDAGO WRIGHTII				1	.1

TREE DATA IN STEMS/375 SQ M. SHRUB, GRASS & HERB DATA AS COVER.
T = SPECIES PRESENT IN TRACE AMOUNTS.
P = SPECIES NOT IN THE PLOT BUT IN THE STAND.

TABLE 12 SOUTH OF MOGOLLON RIM: VEGETATION CHARACTERISTICS - PINUS PONDEROSA/QUERCUS HYPOLEUCOIDES HT

PLOTS-PI:	D	D	D	D	D	D	D	D	D	D
-NO:	23	26	29	41	42	47	48	49	52	53
JUNIPERUS DEPPEANA (Y. REGEN.)		12	1	2		3	1	7		5
JUNIPERUS DEPPEANA (A. REGEN.)									1	3
JUNIPERUS DEPPEANA (MATURE)									1	
JUNIPERUS ERYTHROCARPA (Y.RG.)										
JUNIPERUS ERYTHROCARPA (A.RG.)										
JUNIPERUS ERYTHROCARPA (MAT.)										
PINUS DISCOLOR (YNG. REGEN.)	5							4	16	58
PINUS DISCOLOR (ADV. REGEN.)									3	5
PINUS DISCOLOR (MATURE)										
PINUS ENGELMANNII (YNG. REGEN)		3	2							
PINUS ENGELMANNII (ADV. REGEN)										
PINUS ENGELMANNII (MATURE)		2	2							
PINUS LEIOPHYLLA (YNG. REGEN.)				4				1		
PINUS LEIOPHYLLA (ADV. REGEN.)				1	1			6	1	
PINUS LEIOPHYLLA (MATURE)				P	4					
PINUS PONDEROSA (YNG. REGEN.)	23	15	3	38	1	2	7	1	5	15
PINUS PONDEROSA (ADV. REGEN.)	9		13	11	3	7	7	15	1	3
PINUS PONDEROSA (MATURE)	7	4	2	3	1	7	3	4	4	2
PINUS STROBIFORMIS (YNG. REG.)		2	1							
PINUS STROBIFORMIS (ADV. REG.)			2	1						
PINUS STROBIFORMIS (MATURE)										
PSEUDOTSUGA MENZIESII (Y. REG)				7	P				2	
PSEUDOTSUGA MENZIESII (A. REG)	2			1					1	
PSEUDOTSUGA MENZIESII (MATURE)				P						
QUERCUS ARIZONICA (Y. REGEN.)			3			1			2	3
QUERCUS ARIZONICA (A. REGEN.)			3	1		18	27	11	1	22
QUERCUS ARIZONICA (MATURE)							4			
QUERCUS EMORYI (Y. REGEN.)										
QUERCUS EMORYI (A. REGEN.)										
QUERCUS EMORYI (MATURE)										
QUERCUS GAMBELII (Y. REGEN.)										
QUERCUS GAMBELII (A. REGEN.)										
QUERCUS GAMBELII (MATURE)										
QUERCUS HYPOLEUCOIDES (Y.REG.)	3	43	29	12	33	115	12	23	31	22
QUERCUS HYPOLEUCOIDES (A.REG.)	6	46	28	59	29	15	15	11	7	12
QUERCUS HYPOLEUCOIDES (MATURE)										1
QUERCUS RUGOSA (Y. REGEN.)	2								35	2
QUERCUS RUGOSA (A. REGEN.)									3	
QUERCUS RUGOSA (MATURE)										
AGAVE PALMERI										
AGAVE PARRYI	T							T	1	T
ARBUTUS ARIZONICA	3	3		P	5					
ARCTOSTAPHYLOS PRINGLEI				T					2	
ARCTOSTAPHYLOS PUNGENS									2	
CEANOTHUS FENDLERI				T		T			1	.1
CERCOCARPUS MONTANUS							T			T
FRAXINUS PENNSYLVANICA				T						1
GARRYA WRIGHTII	T	1		.1				T	1	.1
JUGLANS MAJOR										
LONICERA ARIZONICA										
NOLINA MICROCARPA	T				2	3	5	.1	2	.1
PLATANUS WRIGHTII										

TABLE 12 SOUTH OF MOGOLLON RIM: VEGETATION CHARACTERISTICS - PINUS PONDEROSA/QUERCUS HYPOLEUCOIDES HT

PLOTS-PI:	D	D	D	D	D	D	D	D	D	D
-NO:	23	26	29	41	42	47	48	49	52	60
PRUNUS SEROTINA SSP. VIRENS										
QUERCUS ARIZONICA			1	1		7	30	10	1	30
QUERCUS EMORYI										
QUERCUS GAMBELII										T
QUERCUS HYPOLEUCOIDES	3	40	27	25	35	35	15	20	25	25
QUERCUS RUGOSA	2	T	1	.1	T				15	1
QUERCUS TOUMEYI										
RHAMNUS BETULAEFOLIA	.1			.1						.1
RHUS CHORIOPHYLLA										
RHUS AROMATICA										1
ROBINIA NEOMEXICANA										
SYMPHORICARPOS OREOPHILUS										T
VITIS ARIZONICA										
YUCCA SCHOTTII										
ANDROPOGON CIRRATUS										
ARISTIDA PURPURIANA					T		T		T	
BLEPHARONEURON TRICHOLEPIS										
BOUTELOUA CURTIPENDULA										
BOUTELOUA GRACILIS										
BROMOPSIS CILIATA	T									
BROMOPSIS PORTERI										
KOELERIA MACRANTHA	T			T			.3	.1		T
MUHLENBERGIA EMERSLEYI					T				.1	
MUHLENBERGIA LONGILIGULA		7	6	P	1	2	19	4	1	3
MUHLENBERGIA MONTANA										
MUHLENBERGIA VIRESCENS	.1	1	5							
PANICUM BULBOSUM			.3						.1	
PIPTOCHAETIUM FIMBRIATUM									T	
POA FENDLERIANA								10		T
STIPA PRINGLEI							.3			
ARENARIA LANUGINOSA									T	
ARTEMISIA LUDOVICIANA										
BAHIA DISSECTA										
BRICKELLIA GRANDIFLORA										
CHEILANTHES FENDLERI								4		T
COMANDRA UMBELLATA S. PALLIDA		T	T	.1	T					
DESMODIUM ROSEI										
ERIGERON NEOMEXICANUS										
GALIUM ASPERRIMUM										
GALIUM FENDLERI	T							T	T	
GERANIUM CAESPITOSUM										
HEDEOMA HYSSOPIFOLIUM	.1	T	T							
HIERACIUM FENDLERI	T									
PENSTEMON BARBATUS							T			
PHASEOLUS WRIGHTII			T			T				
SENECIO NEOMEXICANUS	T		T	P		T	T	T	T	T
SOLIDAGO SPARSIFLORA				.1			1			T
SOLIDAGO WRIGHTII	T									T

TREE DATA IN STEMS/375 SQ M. SHRUB, GRASS & HERB DATA AS COVER.
T = SPECIES PRESENT IN TRACE AMOUNTS.
P = SPECIES NOT IN THE PLOT BUT IN THE STAND.

TABLE 12 SOUTH OF MOGOLLON RIM: VEGETATION CHARACTERISTICS - PINUS PONDEROSA/QUERCUS HYPOLEUCOIDES HT

PLOTS-PI:	D	D	D	D
-ND:	61	63	70	71
JUNIPERUS DEPPEANA (Y. REGEN.)		2		1
JUNIPERUS DEPPEANA (A. REGEN.)				
JUNIPERUS DEPPEANA (MATURE)				1
JUNIPERUS ERYTHROCARPA (Y.RG.)				
JUNIPERUS ERYTHROCARPA (A.RG.)				
JUNIPERUS ERYTHROCARPA (MAT.)				
PINUS DISCOLOR (YNG. REGEN.)	11	3		
PINUS DISCOLOR (ADV. REGEN.)	3			
PINUS DISCOLOR (MATURE)				
PINUS ENGELMANNII (YNG. REGEN)				
PINUS ENGELMANNII (ADV. REGEN)				
PINUS ENGELMANNII (MATURE)				
PINUS LEIOPHYLLA (YNG. REGEN.)				
PINUS LEIOPHYLLA (ADV. REGEN.)				
PINUS LEIOPHYLLA (MATURE)				
PINUS PONDEROSA (YNG. REGEN.)	1	8	2	1
PINUS PONDEROSA (ADV. REGEN.)	5	26	25	7
PINUS PONDEROSA (MATURE)	4	3	3	7
PINUS STROBIFORMIS (YNG. REG.)				3
PINUS STROBIFORMIS (ADV. REG.)				
PINUS STROBIFORMIS (MATURE)				
PSEUDOTSUGA MENZIESII (Y. REG)	1			
PSEUDOTSUGA MENZIESII (A. REG)	1			
PSEUDOTSUGA MENZIESII (MATURE)				
QUERCUS ARIZONICA (Y. REGEN.)	2		2	53
QUERCUS ARIZONICA (A. REGEN.)		5	1	
QUERCUS ARIZONICA (MATURE)				
QUERCUS EMORYI (Y. REGEN.)				
QUERCUS EMORYI (A. REGEN.)				
QUERCUS EMORYI (MATURE)				
QUERCUS GAMBELII (Y. REGEN.)				
QUERCUS GAMBELII (A. REGEN.)				
QUERCUS GAMBELII (MATURE)				
QUERCUS HYPOLEUCOIDES (Y.REG.)	16	32	135	4
QUERCUS HYPOLEUCOIDES (A.REG.)	27	33	8	
QUERCUS HYPOLEUCOIDES (MATURE)				
QUERCUS RUGOSA (Y. REGEN.)	11			
QUERCUS RUGOSA (A. REGEN.)	2		2	
QUERCUS RUGOSA (MATURE)				
AGAVE PALMERI				
AGAVE PARRYI	T			
ARBUTUS ARIZONICA	1	2	2	
ARCTOSTAPHYLOS PRINGLEI				
ARCTOSTAPHYLOS PUNGENS	.1			
CEANOTHUS FENDLERI	.1	P	T	
CERCOCARPUS MONTANUS				
FRAXINUS PENNSYLVANICA	.1			
GARRYA WRIGHTII	.1			
JUGLANS MAJOR				
LONICERA ARIZONICA				
NOLINA MICROCARPA	1	1	4	P
PLATANUS WRIGHTII				

TABLE 12 SOUTH OF MOGOLLON RIM: VEGETATION CHARACTERISTICS - PINUS PONDEROSA/QUERCUS HYPOLEUCOIDES HT

PLOTS-PI:	D	D	D	D
-NO:	61	63	70	71
PRUNUS SEROTINA SSP. VIRENS	T			
QUERCUS ARIZONICA	1	3	2	1
QUERCUS EMORYI				
QUERCUS GAMBELII				
QUERCUS HYPOLEUCOIDES	45	40	60	2
QUERCUS RUGOSA	10		2	.1
QUERCUS TOUMEYI				
RHAMNUS BETULAEFOLIA				
RHUS CHORIOPHYLLA				
RHUS AROMATICA	1			
ROBINIA NEOMEXICANA				
SYMPHORICARPOS OREOPHILUS				
VITIS ARIZONICA				
YUCCA SCHOTTII				
ANDROPOGON CIRRATUS				
ARISTIDA ORCUTTIANA				
BLEPHARONEURON TRICHOLEPIS				
BOUTELOUA CURTIPENDULA				
BOUTELOUA GRACILIS				
BROMOPSIS CILIATA				
BROMOPSIS PORTERI				.1
KOELERIA MACRANTHA		.1		2
MUHLENBERGIA EMERSLEYI				
MUHLENBERGIA LONGILIGULA	2	2	3	6
MUHLENBERGIA MONTANA				
MUHLENBERGIA VIRESCENS				T
PANICUM BULBOSUM				
PIPTOCHAETIUM FIMBRIATUM				
POA FENDLERIANA		.1		
STIPA PRINGLEI				
ARENARIA LANUGINOSA				
ARTEMISIA LUDOVICIANA				T
BAHIA DISSECTA				
BRICKELLIA GRANDIFLORA				
CHEILANTHES FENDLERI		T		
COMANDRA UMBELLATA S. PALLIDA	.1	.1	1	
DESMODIUM ROSEI				
ERIGERON NEOMEXICANUS				
GALIUM ASPERRINUM				
GALIUM FENDLERI			T	
GERANIUM CAESPITOSUM				
HEDEOMA HYSSOPIFOLIUM				.1
HIERACIUM FENDLERI				T
PENSTEMON BARBATUS			T	
PHASEOLUS WRIGHTII				
SENECIO NEOMEXICANUS				
SOLIDAGO SPARSIFLORA	T	T		2
SOLIDAGO WRIGHTII				

TREE DATA IN STEMS/375 SQ M. SHRUB, GRASS & HERB DATA AS COVER.
T = SPECIES PRESENT IN TRACE AMOUNTS.
P = SPECIES NOT IN THE PLOT BUT IN THE STAND.

TABLE 13 SOUTH OF MOGOLLON RIM: VEGETATION CHARACTERISTICS - PINUS PONDEROSA/QUERCUS ARIZONICA HT

PLOTS-PI:	M	M	M	M	D	D	D	D	D	D
-NO:	981	983	986	987	45	54	55	57	58	65
JUNIPERUS DEPPEANA (Y. REGEN.)		4	7	7	2	6		3	P	2
JUNIPERUS DEPPEANA (A. REGEN.)			1	3	4			2	P	
JUNIPERUS DEPPEANA (MATURE)			P		1	1		2		
JUNIPERUS ERYTHROCARPA (Y.RG.)										
JUNIPERUS ERYTHROCARPA (A.RG.)										
JUNIPERUS ERYTHROCARPA (MAT.)										
PINUS DISCOLOR (YNG. REGEN.)			4							P
PINUS DISCOLOR (ADV. REGEN.)			1							1
PINUS DISCOLOR (MATURE)										
PINUS ENGELMANNII (YNG. REGEN)										
PINUS ENGELMANNII (ADV. REGEN)										
PINUS ENGELMANNII (MATURE)										
PINUS LEIOPHYLLA (YNG. REGEN.)										
PINUS LEIOPHYLLA (ADV. REGEN.)										
PINUS LEIOPHYLLA (MATURE)							1			
PINUS PONDEROSA (YNG. REGEN.)		30	2	22	1	4	2	1	1	1
PINUS PONDEROSA (ADV. REGEN.)	15	9	6	4	2	8	1		5	12
PINUS PONDEROSA (MATURE)		10	2	4	8	2	5	2	17	5
PINUS STROBIFORMIS (YNG. REG.)	P									
PINUS STROBIFORMIS (ADV. REG.)										
PINUS STROBIFORMIS (MATURE)										
PSEUDOTSUGA MENZIESII (Y. REG)		1								
PSEUDOTSUGA MENZIESII (A. REG)		1								
PSEUDOTSUGA MENZIESII (MATURE)										
QUERCUS ARIZONICA (Y. REGEN.)			6	11		11	14		13	
QUERCUS ARIZONICA (A. REGEN.)		1	16	7	6	15	23	5	22	5
QUERCUS ARIZONICA (MATURE)		5		3		1			1	1
QUERCUS EMORYI (Y. REGEN.)						9	4		11	
QUERCUS EMORYI (A. REGEN.)		2				9	1	3	8	
QUERCUS EMORYI (MATURE)		1		1					1	
QUERCUS GAMBELII (Y. REGEN.)										
QUERCUS GAMBELII (A. REGEN.)										
QUERCUS GAMBELII (MATURE)										
QUERCUS HYPOLEUCOIDES (Y.REG.)										
QUERCUS HYPOLEUCOIDES (A.REG.)					P					
QUERCUS HYPOLEUCOIDES (MATURE)										
QUERCUS RUGOSA (Y. REGEN.)										
QUERCUS RUGOSA (A. REGEN.)										
QUERCUS RUGOSA (MATURE)										
AGAVE PALMERI								.1		
AGAVE PARRYI					P	T	.1			
ARBUTUS ARIZONICA				3						
ARCTOSTAPHYLOS PRINGLEI	P	T				35	15	10		
ARCTOSTAPHYLOS PUNGENS			.1					3		
CEANOTHUS FENDLERI			T	T			1		.1	
CERCOCARPUS MONTANUS					T	2				
FRAXINUS PENNSYLVANICA										
GARRYA WRIGHTII	P		T			1		1		
JUGLANS MAJOR				P						
LONICERA ARIZONICA								1		
NOLINA MICROCARPA					T	.1	1			.1
PLATANUS WRIGHTII										

TABLE 13 SOUTH OF MOGOLLON RIM: VEGETATION CHARACTERISTICS - PINUS PONDEROSA/QUERCUS ARIZONICA HT

PLOTS-PI:	M	M	M	M	O	O	O	O	O	O
-NO:	981	983	986	987	46	54	55	57	58	59
PRUNUS SEROTINA SSP. VIRENS										
QUERCUS ARIZONICA	35	15	30	25	8	15	15	8	25	7
QUERCUS EMORYI	5	6	2	.3		10	2	4	10	
QUERCUS GAMBELII										
QUERCUS HYPOLEUCOIDES					P					
QUERCUS RUGOSA										
QUERCUS TOURNEYI										
RHAMNUS BETULAEFOLIA	P			.1					P	
RHUS CHORIOPHYLLA										
RHUS AROMATICA								1		
ROBINIA NEOMEXICANA	P								P	
SYMPHORICARPOS OREOPHILUS										
VITIS ARIZONICA				5						
YUCCA SCHOTTII			P							
ANDROPOGON GIRRATUS		.1	T	P						
ARISTIDA ORCUTTIANA			T	T	P					
BLEPHARONEURON TRICHOLEPIS										
BOUTELOUA CURTIPENDULA			P							
BOUTELOUA GRACILIS			P	25						1
BROMOPSIS CILIATA										
BROMOPSIS PORTERI										
KOELERIA MACRANTHA					T			T	.1	4
MUHLENBERGIA EMERSLEYI					P					
MUHLENBERGIA LONGILIGULA	P	.1	.9		4					8
MUHLENBERGIA MONTANA		.2								2
MUHLENBERGIA VIRESCENS										
PANICUM BULBOSUM										
PIPTOCHAETIUM FIMBRIATUM			.1	.1	T					
POA FENDLERIANA	.1							1	T	.1
STIPA PRINGLEI										
ARENARIA LANUGINOSA										T
ARTEMISIA LUDOVICIANA	P		T	8						
BAHIA DISSECTA									T	
BRICKELLIA GRANDIFLORA										
CHEILANTHES FENDLERI								T		
COMANDRA UMBELLATA S. PALLIDA		.1							T	
DESMODIUM ROSEI				3						
ERIGERON NEOMEXICANUS										
GALIUM ASPERRINUM										
GALIUM FENDLERI									.1	
GERANIUM CAESPITOSUM				.1					P	
HEDEOMA HYSSOPIFOLIUM		.2								
HIERACIUM FENDLERI						T				
PENSTEMON BARBATUS				T	T					
PHASEOLUS WRIGHTII										
SENECIO NEOMEXICANUS	.1			.1	T	T		.1	T	T
SOLIDAGO SPARSIFLORA					.1	.1	T	1	1	3
SOLIDAGO WRIGHTII								.1		

TREE DATA IN STEMS/375 SQ M. SHRUB, GRASS & HERB DATA AS COVER.
T = SPECIES PRESENT IN TRACE AMOUNTS.
P = SPECIES NOT IN THE PLOT BUT IN THE STAND.

TABLE 13 SOUTH OF MOGOLLON RIM: VEGETATION CHARACTERISTICS - PINUS PONDEROSA/QUERCUS ARIZONICA HT

	PLOTS-PI:	D
	-NO:	68	80
JUNIPERUS DEPPEANA (Y. REGEN.)	10	4
JUNIPERUS DEPPEANA (A. REGEN.)	1	2
JUNIPERUS DEPPEANA (MATURE)		
JUNIPERUS ERYTHROCARPA (Y.RG.)		
JUNIPERUS ERYTHROCARPA (A.RG.)		
JUNIPERUS ERYTHROCARPA (MAT.)		
PINUS DISCOLOR (YNG. REGEN.)	28	1
PINUS DISCOLOR (ADV. REGEN.)	5	
PINUS DISCOLOR (MATURE)		
PINUS ENGELMANNII (YNG. REGEN)		
PINUS ENGELMANNII (ADV. REGEN)		
PINUS ENGELMANNII (MATURE)		
PINUS LEIOPHYLLA (YNG. REGEN.)	5	
PINUS LEIOPHYLLA (ADV. REGEN.)	3	
PINUS LEIOPHYLLA (MATURE)	P	
PINUS PONDEROSA (YNG. REGEN.)	4	8
PINUS PONDEROSA (ADV. REGEN.)	2	37
PINUS PONDEROSA (MATURE)	2	6
PINUS STROBIFORMIS (YNG. REG.)		
PINUS STROBIFORMIS (ADV. REG.)		
PINUS STROBIFORMIS (MATURE)		
PSEUDOTSUGA MENZIESII (Y. REG)		
PSEUDOTSUGA MENZIESII (A. REG)		
PSEUDOTSUGA MENZIESII (MATURE)		
QUERCUS ARIZONICA (Y. REGEN.)		2
QUERCUS ARIZONICA (A. REGEN.)	8	6
QUERCUS ARIZONICA (MATURE)	12	1
QUERCUS EMORYI (Y. REGEN.)		
QUERCUS EMORYI (A. REGEN.)		
QUERCUS EMORYI (MATURE)		
QUERCUS GAMBELII (Y. REGEN.)		
QUERCUS GAMBELII (A. REGEN.)		
QUERCUS GAMBELII (MATURE)		
QUERCUS HYPOLEUCOIDES (Y.REG.)	7	
QUERCUS HYPOLEUCOIDES (A.REG.)	5	
QUERCUS HYPOLEUCOIDES (MATURE)		
QUERCUS ROBUSA (Y. REGEN.)		
QUERCUS ROBUSA (A. REGEN.)		
QUERCUS ROBUSA (MATURE)		
AGAVE PALMERI		
AGAVE PARRYI		1
ARBUTUS ARIZONICA		
ARCTOSTAPHYLOS PRINGLEI		
ARCTOSTAPHYLOS PUNGENS		
CEANOTHUS FENDLERI		
CERCOCARPUS MONTANUS		
FRAXINUS PENNSYLVANICA	T	
GARRYA WRIGHTII	T	
JUGLANS MAJOR		
LONICERA ARIZONICA	.1	
NOLINA MICROCARPA		1
PLATANUS WRIGHTII		

TABLE 13 SOUTH OF MOGOLLON RIM: VEGETATION CHARACTERISTICS - PINUS PONDEROSA/QUERCUS ARIZONICA HT

	PLOTS-PI:	D	D
	-NO:	68	80
PRUNUS SEROTINA SSP. VIRENS			
QUERCUS ARIZONICA		35	8
QUERCUS EMORYI			P
QUERCUS GAMBELII			
QUERCUS HYPOLEUCOIDES		5	
QUERCUS RUGOSA			
QUERCUS TOUMEYI			
RHAMNUS BETULAEFOLIA		6	
RHUS CHORIOPHYLLA			
RHUS AROMATICA		P	
ROBINIA NEOMEXICANA		T	
SYMPHORICARPOS OREOPHILUS			
VITIS ARIZONICA		T	
YUCCA SCHOTTII			
ANDROPOGON CIRRATUS			
ARISTIDA ORCUTTIANA			
BLEPHARONEURON TRICHOLEPIS			
BOUTELOUA CURTIPENDULA			T
BOUTELOUA GRACILIS			
BROMOPSIS CILIATA			
BROMOPSIS PORTERI			
KOELERIA MACRANTHA			.1
MUHLENBERGIA EMERSLEYI			
MUHLENBERGIA LONGILIGULA		20	10
MUHLENBERGIA MONTANA			
MUHLENBERGIA VIRESCENS			
PANICUM BULBOSUM			.1
PIPTOCHAETIUM FIMBRIATUM		T	
POA FENDLERIANA			
STIPA PRINGLEI			7
ARENARIA LANUGINOSA			
ARTEMISIA LUDOVICIANA			
BAHIA DISSECTA			
BRICKELLIA GRANDIFLORA			
CHEILANTHES FENDLERI			
COMANDRA UMBELLATA S. PALLIDA			
DESMODIUM ROSEI			
ERIGERON NEOMEXICANUS			
GALIUM ASPERRINUM			
GALIUM FENDLERI			
GERANIUM CAESPITOSUM			
HEDEOMA HYSSOPIFOLIUM			
HIERACIUM FENDLERI			T
PENSTEMON BARBATUS			
PHASEOLUS WRIGHTII			
SENECIO NEOMEXICANUS		T	T
SOLIDAGO SPARSIFLORA		2	2
SOLIDAGO WRIGHTII			

TREE DATA IN STEMS/375 SQ M. SHRUB, GRASS & HERB DATA AS COVER.
T = SPECIES PRESENT IN TRACE AMOUNTS.
P = SPECIES NOT IN THE PLOT BUT IN THE STAND.

TABLE 1. SOUTH OF MOGOLLON RIM: VEGETATION CHARACTERISTICS - PINUS LEIOPHYLLA/QUERCUS HYPOLEUCOIDES HT

PLOTS-PI:	0	0	0	0	0	0	0
-NO:	5	17	24	30	35	39	45
JUNIPERUS DEPPEANA (Y. REGEN.)	2	1	7	9	4	12	1
JUNIPERUS DEPPEANA (A. REGEN.)	4		4	1			
JUNIPERUS DEPPEANA (MATURE)						1	
JUNIPERUS ERYTHROCARPA (Y.RG.)							
JUNIPERUS ERYTHROCARPA (A.RG.)							
JUNIPERUS ERYTHROCARPA (MAT.)							
PINUS DISCOLOR (YNG. REGEN.)	15	3	16	6	3	106	
PINUS DISCOLOR (ADV. REGEN.)	4		1			5	
PINUS DISCOLOR (MATURE)							
PINUS ENGELMANNII (YNG. REGEN)							
PINUS ENGELMANNII (ADV. REGEN)					3		
PINUS ENGELMANNII (MATURE)							
PINUS LEIOPHYLLA (YNG. REGEN.)	5	6	2	8	7	2	1
PINUS LEIOPHYLLA (ADV. REGEN.)	7	5	1	4	31	2	15
PINUS LEIOPHYLLA (MATURE)	4	7	4	13	2	4	8
PINUS PONDEROSA (YNG. REGEN.)							
PINUS PONDEROSA (ADV. REGEN.)							
PINUS PONDEROSA (MATURE)							
PINUS STROBIFORMIS (YNG. REG.)							
PINUS STROBIFORMIS (ADV. REG.)							
PINUS STROBIFORMIS (MATURE)							
PSEUDOTSUGA MENZIESII (Y. REG)				1		2	
PSEUDOTSUGA MENZIESII (A. REG)				1			
PSEUDOTSUGA MENZIESII (MATURE)							
QUERCUS ARIZONICA (Y. REGEN.)	1		2	4		4	
QUERCUS ARIZONICA (A. REGEN.)	10	1	31	5	1	59	13
QUERCUS ARIZONICA (MATURE)	2						
QUERCUS EMORYI (Y. REGEN.)	1						
QUERCUS EMORYI (A. REGEN.)						1	
QUERCUS EMORYI (MATURE)							
QUERCUS GAMBELII (Y. REGEN.)							
QUERCUS GAMBELII (A. REGEN.)							
QUERCUS GAMBELII (MATURE)							
QUERCUS HYPOLEUCOIDES (Y.REG.)	21	100	3	9	52	39	6
QUERCUS HYPOLEUCOIDES (A.REG.)		46	3	10	16	5	38
QUERCUS HYPOLEUCOIDES (MATURE)							
QUERCUS RUGOSA (Y. REGEN.)							
QUERCUS RUGOSA (A. REGEN.)							
QUERCUS RUGOSA (MATURE)							
AGAVE PALMERI							
AGAVE PARRYI	.1				T	T	.1
ARBUTUS ARIZONICA		6	3				1
ARCTOSTAPHYLOS PRINGLEI							.1
ARCTOSTAPHYLOS PUNGENS	.2						
CEANOTHUS FENDLERI			T	T		T	
CERCOCARPUS MONTANUS						3	
FRAXINUS PENNSYLVANICA				.1			
GARRYA WRIGHTII			T		T	2	
JUGLANS MAJOR							
LONICERA ARIZONICA							
NOLINA MICROCARPA	9		1			P	
PLATANUS WRIGHTII							

TABLE 14. SOUTH OF MOGOLLON RIM: VEGETATION CHARACTERISTICS - PINUS LEIOPHYLLA/QUERCUS HYPOLEUCOIDES HT

PLOTS-PI:	D	D	D	D	D	D	D
-NO:	5	17	24	30	35	39	45
PRUNUS SEROTINA SSP. VIRENS							
QUERCUS ARIZONICA	15	1	30	6	.1	50	5
QUERCUS EMORYI	.1					1	
QUERCUS GAMBELII							
QUERCUS HYPOLEUCOIDES	5	65	5	9	20	20	25
QUERCUS RUGOSA		.1					
QUERCUS TOUMEYI							
RHAMNUS BETULAEFOLIA			.1				
RHUS CHORIOPHYLLA							
RHUS AROMATICA	3				T	T	
ROBINIA NEOMEXICANA							
SYMPHORICARPOS OREOPHILUS							
VITIS ARIZONICA							
YUCCA SCHOTTII	3		2		1	.1	
ANDROPOGON GIRRATUS			T		T		
ARISTIDA ORCUTTIANA	.4		.1	.1	3	T	
BLEPHARONEURON TRICHOLEPIS							
BOUTELOUA CURTIPENDULA							
BOUTELOUA GRACILIS							
BROMOPSIS CILIATA							
BROMOPSIS PORTERI			T				
KOELERIA MACRANTHA							
MUHLENBERGIA EMERSLEYI					3		.1
MUHLENBERGIA LONGILIGULA	17	3	25	10	2	10	3
MUHLENBERGIA MONTANA							
MUHLENBERGIA VIRESCENS							
PANICUM BULBOSUM				T			
PIPTOCHAETIUM FIMBRIATUM	.3		T	T		.1	
POA FENDLERIANA							
STIPA PRINGLEI							
ARENARIA LANUGINOSA							
ARTEMISIA LUDOVICIANA				T			
BAHIA DISSECTA	T					P	
BRICKELLIA GRANDIFLORA							
CHEILANTHES FENDLERI						T	
COMANDRA UMBELLATA S. PALLIDA							P
DESMODIUM ROSEI	T				.1		
ERIGERON NEOMEXICANUS							
GALIUM ASPERRINUM				T			
GALIUM FENDLERI							
GERANIUM CAESPITOSUM							
HEDEOMA HYSSOPIFOLIUM							
HIERACIUM FENDLERI				T			
PENSTEMON BARBATUS							
PHASEOLUS WRIGHTII							
SENECIO NEOMEXICANUS				T			T
SOLIDAGO SPARSIFLORA							
SOLIDAGO WRIGHTII							

TREE DATA IN STEMS/375 SQ M. SHRUB, GRASS & HERB DATA AS COVER.
T = SPECIES PRESENT IN TRACE AMOUNTS.
P = SPECIES NOT IN THE PLOT BUT IN THE STAND.

TABLE 15 SOUTH OF MOGOLLON RIM: VEGETATION CHARACTERISTICS -
PINUS LEIOPHYLLA/QUERCUS ARIZONICA HT

PLOTS-PI:	M	D	D	D	D	D	D	D	D	D
-NO:	988	3	4	6	13	31	32	44	50	55
JUNIPERUS DEPPEANA (Y. REGEN.)	5	6	7	5	1	4	1	5	5	3
JUNIPERUS DEPPEANA (A. REGEN.)	1	o	2	13		2		P	3	
JUNIPERUS DEPPEANA (MATURE)		2	2	2						1
JUNIPERUS ERYTHROCARPA (Y.RG.)										
JUNIPERUS ERYTHROCARPA (A.RG.)										
JUNIPERUS ERYTHROCARPA (MAT.)										
PINUS DISCOLOR (YNG. REGEN.)	3	39	26	59	1	2	8		5	7
PINUS DISCOLOR (ADV. REGEN.)		4	14	5						2
PINUS DISCOLOR (MATURE)										
PINUS ENGELMANNII (YNG. REGEN)										
PINUS ENGELMANNII (ADV. REGEN)										
PINUS ENGELMANNII (MATURE)										
PINUS LEIOPHYLLA (YNG. REGEN.)			1	2	2	2	P	1	1	2
PINUS LEIOPHYLLA (ADV. REGEN.)		5	8	3	2	10	2	P	1	4
PINUS LEIOPHYLLA (MATURE)	4	5	1	4	2	3	3	2	2	3
PINUS PONDEROSA (YNG. REGEN.)									1	
PINUS PONDEROSA (ADV. REGEN.)								1		
PINUS PONDEROSA (MATURE)										
PINUS STROBIFORMIS (YNG. REG.)										
PINUS STROBIFORMIS (ADV. REG.)										
PINUS STROBIFORMIS (MATURE)										
PSEUDOTSUGA MENZIESII (Y. REG)										
PSEUDOTSUGA MENZIESII (A. REG)										
PSEUDOTSUGA MENZIESII (MATURE)										
QUERCUS ARIZONICA (Y. REGEN.)		4	5	2	1					3
QUERCUS ARIZONICA (A. REGEN.)	12	27	9	4	8	7	12	38	3	
QUERCUS ARIZONICA (MATURE)			1	1	1					
QUERCUS EMORYI (Y. REGEN.)		1	3	3	1		1		3	1
QUERCUS EMORYI (A. REGEN.)	3			2	9	11	2	2	25	2
QUERCUS EMORYI (MATURE)										
QUERCUS GAMBELII (Y. REGEN.)										
QUERCUS GAMBELII (A. REGEN.)										
QUERCUS GAMBELII (MATURE)										
QUERCUS HYPOLEUCOIDES (Y.REG.)	1	1	2	25	3		46	7	2	23
QUERCUS HYPOLEUCOIDES (A.REG.)	3				1		16	19	3	3
QUERCUS HYPOLEUCOIDES (MATURE)										
QUERCUS RUGOSA (Y. REGEN.)										
QUERCUS RUGOSA (A. REGEN.)										
QUERCUS RUGOSA (MATURE)										
AGAVE PALMERI					.1		P			
AGAVE PARRYI							T	.1	T	T
ARBUTUS ARIZONICA							3			
ARCTOSTAPHYLOS PRINGLEI								8	1	
ARCTOSTAPHYLOS PUNGENS	1		4	.1		8	3	7	5	8
CEANOTHUS FENDLERI										
CERCOCARPUS MONTANUS										
FRAXINUS PENNSYLVANICA										P
GARRYA WRIGHTII	.1					T	1	T	2	
JUGLANS MAJOR										
LONICERA ARIZONICA										.1
NOLINA MICROCARPA	5	9	5	5	5	3	4	5	7	P
PLATANUS WRIGHTII										

TABLE 15 SOUTH OF MOGOLLON RIM: VEGETATION CHARACTERISTICS - PINUS LEIOPHYLLA/QUERCUS ARIZONICA HT

PLOTS-PI:	M	J	J	J	J	J	J	J	J	J
-NJ:	988	3	4	6	13	31	32	44	50	66
PRUNUS SEROTINA SSP. VIRENS										1
QUERCUS ARIZONICA	5	21	15	3	20	3	2	40	6	1
QUERCUS EMORYI		.8	2	4	15	5	.1	2	25	3
QUERCUS GAMBELII										
QUERCUS HYPOLEUCOIDES		1	.1	6	3		30	30	8	6
QUERCUS RUGOSA										
QUERCUS TOUMEYI							1			2
RHAMNUS BETULAEFOLIA										.1
RHUS CHORIOPHYLLA					1	.1	T			
RHUS AROMATICA	.3	3	3	1	2	T	T			3
ROBINIA NEOMEXICANA										
SYMPHORICARPOS OREOPHILUS										
VITIS ARIZONICA										1
YUCCA SCHOTTII	.1	1	.2	.1	1	1				
ANDROPOGON CIRRATUS			T		2	.1	T	T		
ARISTIDA ORCUTTIANA			T	T	5	10	.1	T	.1	
BLEPHARONEURON TRICHOLEPIS										
BOUTELOUA CURTIPENDULA					.1				1	.1
BOUTELOUA GRACILIS										
BROMOPSIS CILIATA										
BROMOPSIS PORTERI										
KOELERIA MACRANTHA		.1	T					1	1	
MUHLENBERGIA EMERSLEYI					8			.1	.1	
MUHLENBERGIA LONGILIGULA	.1	20	1	20	50	15	6	4	2	10
MUHLENBERGIA MONTANA										
MUHLENBERGIA VIRESCENS										
PANICUM BULBOSUM		T								1
PTILOCHAETIUM FIMBRIATUM	T	.3								T
POA FENDLERIANA		1								.1
STIPA PRINGLEI										
ARENARIA LANUGINOSA										
ARTEMISIA LUDOVICIANA										
BAHIA DISSECTA	T	.8	.1	T						T
BRICKELLIA GRANDIFLORA			.2	T						
CHEILANTHES FENDLERI		T		T	T		T	T	1	.1
COMANDRA UMBELLATA S. PALLIDA						T		T		
DESMODIUM ROSEI		T		T						T
ERIGERON NEOMEXICANUS	T					T	T			.1
GALIUM ASPERRIMUM										
GALIUM FENDLERI										.1
GERANIUM CAESPITOSUM										
HEDEOMA HYSSOPIFOLIUM					T					2
HIERACIUM FENDLERI										
PENSTEMON BARBATUS				T		T	T	T		
PHASEOLUS WRIGHTII		T		1		T	T			
SENECIO NEOMEXICANUS		.5	.1		T			.1	T	T
SOLIDAGO SPARSIFLORA								1		
SOLIDAGO WRIGHTII	.1				.1					

TREE DATA IN STEMS/375 SQ M. SHRUB, GRASS & HERB DATA AS COVER.
T = SPECIES PRESENT IN TRACE AMOUNTS.
P = SPECIES NOT IN THE PLOT BUT IN THE STAND.

TABLE 15 SOUTH OF MOGOLLON RIM: VEGETATION CHARACTERISTICS - PINUS LEIOPHYLLA/QUERCUS ARIZONICA HT

	PLOTS-PI:	D
	-NO:	67
JUNIPERUS DEPPEANA (Y. REGEN.)		7
JUNIPERUS DEPPEANA (A. REGEN.)		3
JUNIPERUS DEPPEANA (MATURE)		
JUNIPERUS ERYTHROCARPA (Y.RG.)		
JUNIPERUS ERYTHROCARPA (A.RG.)		
JUNIPERUS ERYTHROCARPA (MAT.)		
PINUS DISCOLOR (YNG. REGEN.)		4
PINUS DISCOLOR (ADV. REGEN.)		4
PINUS DISCOLOR (MATURE)		
PINUS ENGELMANNII (YNG. REGEN)		
PINUS ENGELMANNII (ADV. REGEN)		
PINUS ENGELMANNII (MATURE)		
PINUS LEIOPHYLLA (YNG. REGEN.)		1
PINUS LEIOPHYLLA (ADV. REGEN.)		1
PINUS LEIOPHYLLA (MATURE)		4
PINUS PONDEROSA (YNG. REGEN.)		
PINUS PONDEROSA (ADV. REGEN.)		
PINUS PONDEROSA (MATURE)		
PINUS STROBIFORMIS (YNG. REG.)		
PINUS STROBIFORMIS (ADV. REG.)		
PINUS STROBIFORMIS (MATURE)		
PSEUDOTSUGA MENZIESII (Y. REG)		
PSEUDOTSUGA MENZIESII (A. REG)		
PSEUDOTSUGA MENZIESII (MATURE)		
QUERCUS ARIZONICA (Y. REGEN.)		1
QUERCUS ARIZONICA (A. REGEN.)		
QUERCUS ARIZONICA (MATURE)		
QUERCUS EMORYI (Y. REGEN.)		
QUERCUS EMORYI (A. REGEN.)		4
QUERCUS EMORYI (MATURE)		1
QUERCUS GAMBELII (Y. REGEN.)		
QUERCUS GAMBELII (A. REGEN.)		
QUERCUS GAMBELII (MATURE)		
QUERCUS HYPOLEUCOIDES (Y.REG.)		
QUERCUS HYPOLEUCOIDES (A.REG.)		
QUERCUS HYPOLEUCOIDES (MATURE)		
QUERCUS RUGOSA (Y. REGEN.)		
QUERCUS RUGOSA (A. REGEN.)		
QUERCUS RUGOSA (MATURE)		
AGAVE PALMERI		
AGAVE PARRYI		T
ARBUTUS ARIZONICA		
ARCTOSTAPHYLOS PRINGLEI		
ARCTOSTAPHYLOS PUNGENS		28
CEANOTHUS FENDLERI		
CERCOCARPUS MONTANUS		.3
FRAXINUS PENNSYLVANICA		
GARRYA WRIGHTII		T
JUGLANS MAJOR		
LONICERA ARIZONICA		
NOLINA MICROCARPA		5
PLATANUS WRIGHTII		

TABLE 15 SOUTH OF MOGOLLON RIM: VEGETATION CHARACTERISTICS - PINUS LEIOPHYLLA/QUERCUS ARIZONICA HT

	PLOTS-PI: 8 -NO: 67
PRUNUS SEROTINA SSP. VIRENS	
QUERCUS ARIZONICA	.1
QUERCUS EMORYI	14
QUERCUS GAMBELII	
QUERCUS HYPOLEUCOIDES	.1
QUERCUS RUGOSA	
QUERCUS TOMEYI	
RHAMNUS BETULAEFOLIA	
RHUS CHORIOPHYLLA	
RHUS AROMATICA	
ROBINIA NEOMEXICANA	
SYMPHORICARPOS OREOPHILUS	
VITIS ARIZONICA	
YUCCA SCHOTTII	
ANDROPOGON CIRRATUS	8
ARISTIDA ARCUTTIANA	3
BLEPHARONEURON TRICHOLEPIS	
BOUTELOUA CURTIPENDULA	3
BOUTELOUA GRACILIS	
BROMOPSIS CILIATA	
BROMOPSIS PORTERI	
KOELERIA MACRANTHA	
MUHLENBERGIA EMERSLEYI	9
MUHLENBERGIA LONGILIGULA	5
MUHLENBERGIA MONTANA	
MUHLENBERGIA VIRESCENS	
PANICUM BOLEOSUM	
PIPTOCHAETIUM FIMBRIATUM	
POA FENDLERIANA	.8
STIPA PRINGLEI	
ARENARIA LANUGINOSA	
ARTEMISIA LUDOVICIANA	
BAHIA DISSECTA	
BRICKELLIA GRANDIFLORA	
CHEILANTHES FENDLERI	
COMANDRA UMBELLATA S. PALLIDA	
DESMODIUM ROSEI	
ERIGERON NEOMEXICANUS	
GALIUM ASPERRIMUM	
GALIUM FENDLERI	
GERANIUM CAESPITOSUM	
HEDEOMA HYSSOPIFOLIUM	
HIERACIUM FENDLERI	
PENSTEMON BARBATUS	
PHASEOLUS WRIGHTII	
SENECIO NEOMEXICANUS	.4
SOLIDAGO SPARSIFLORA	
SOLIDAGO WRIGHTII	

TREE DATA IN STEMS/375 SQ M. SHRUB, GRASS & HERB DATA AS COVER.
T = SPECIES PRESENT IN TRACE AMOUNTS.
P = SPECIES NOT IN THE PLOT BUT IN THE STAND.

TABLE 15 SOUTH OF MOGOLLON RIM: VEGETATION CHARACTERISTICS - PINUS LEIOPHYLLA/PIPTOCHAETIUM FIMBRIATUM HT

PLOTS-PI:	0	0	0	0	0	0
-NO:	11	12	16	18	27	28
JUNIPERUS DEPPEANA (Y. REGEN.)	17		7	24	7	29
JUNIPERUS DEPPEANA (A. REGEN.)	25			2	4	12
JUNIPERUS DEPPEANA (MATURE)	2			1	1	3
JUNIPERUS ERYTHROCARPA (Y.RG.)		3				
JUNIPERUS ERYTHROCARPA (A.RG.)		1				
JUNIPERUS ERYTHROCARPA (MAT.)						
PINUS DISCOLOR (YNG. REGEN.)		9	4	5	23	1
PINUS DISCOLOR (ADV. REGEN.)		1		2	1	
PINUS DISCOLOR (MATURE)						
PINUS ENGELMANNII (YNG. REGEN)			3		3	
PINUS ENGELMANNII (ADV. REGEN)			3			
PINUS ENGELMANNII (MATURE)			2		1	
PINUS LEIOPHYLLA (YNG. REGEN.)	17	1	9	4	35	4
PINUS LEIOPHYLLA (ADV. REGEN.)	2	2	4	16	4	2
PINUS LEIOPHYLLA (MATURE)	1	2	2	7	2	3
PINUS PONDEROSA (YNG. REGEN.)						
PINUS PONDEROSA (ADV. REGEN.)						
PINUS PONDEROSA (MATURE)						
PINUS STROBIFORMIS (YNG. REG.)						
PINUS STROBIFORMIS (ADV. REG.)						
PINUS STROBIFORMIS (MATURE)						
PSEUDOTSUGA MENZIESII (Y. REG)						
PSEUDOTSUGA MENZIESII (A. REG)						
PSEUDOTSUGA MENZIESII (MATURE)						
QUERCUS ARIZONICA (Y. REGEN.)		1	5			
QUERCUS ARIZONICA (A. REGEN.)	2	1	28	3	9	9
QUERCUS ARIZONICA (MATURE)	2	3	1	3	1	1
QUERCUS EMORYI (Y. REGEN.)		1				1
QUERCUS EMORYI (A. REGEN.)		2				3
QUERCUS EMORYI (MATURE)					1	
QUERCUS GAMBELII (Y. REGEN.)						
QUERCUS GAMBELII (A. REGEN.)						
QUERCUS GAMBELII (MATURE)						
QUERCUS HYPOLEUCOIDES (Y.REG.)		12	60	33		5
QUERCUS HYPOLEUCOIDES (A.REG.)		1	15			
QUERCUS HYPOLEUCOIDES (MATURE)						
QUERCUS RUGOSA (Y. REGEN.)						
QUERCUS RUGOSA (A. REGEN.)						
QUERCUS RUGOSA (MATURE)						
AGAVE PALMERI		T				
AGAVE PARRYI						T
ARBUTUS ARIZONICA						
ARCTOSTAPHYLOS PRINGLEI						
ARCTOSTAPHYLOS PUNGENS		2				T
CEANOTHUS FENDLERI			T			
CERCOCARPUS MONTANUS						
FRAXINUS PENNSYLVANICA					T	
GARRYA WRIGHTII		2			.1	
JUGLANS MAJOR					.1	
LONICERA ARIZONICA						
MOLINA MICROCARPA		.1				
PLATANUS WRIGHTII	9				6	

TABLE 15 SOUTH OF MOGOLLON RIM: VEGETATION CHARACTERISTICS - PINUS LEIOPHYLLA/PIPTOCHAETIUM FIMBRIATUM HT

PLOTS-PI:	0	0	0	0	0	0
-NO:	11	12	16	18	27	28
PRUNUS SEROTINA SSP. VIRENS		5	T	5	T	
QUERCUS ARIZONICA	20	15	30	15	20	15
QUERCUS EMORYI	.1	2		4	5	4
QUERCUS GAMBELLI						
QUERCUS HYPOLEUCOIDES		4	35	15	3	1
QUERCUS RUGOSA				2		
QUERCUS TOUMEYI						
RHAMNUS BETULAEFOLIA	.8	3	1	2	1	
RHUS CHORIOPHYLLA		1				
RHUS AROMATICA		20	T	.1	1	2
ROBINIA NEOMEXICANA				1		
SYMPHORICARPOS OREOPHILUS						
VITIS ARIZONICA	4	1	1	3	2	
YUCCA SCHOTTII		1	.1	1	T	
ANDROPOGON CIRRATUS						
ARISTIDA ORCUTTIANA	.1	.1	.1	T		T
BLEPHARONEURON TRICHOLEPIS						
BOUTELOUA CURTIPENDULA	2	1		4		T
BOUTELOUA GRACILIS						
BROMOPSIS CILIATA						
BROMOPSIS PORTERI				T	.1	
KOELERIA MACRANTHA						
MUHLENBERGIA EMERSLEYI		8				
MUHLENBERGIA LONGILIGULA	.1	5	6	1	.1	
MUHLENBERGIA MONTANA						
MUHLENBERGIA VIRESCENS						
PANICUM BULBOSUM			2	3	5	
PIPTOCHAETIUM FIMBRIATUM	53	40	20	35	45	35
POA FENDLERIANA						
STIPA PRINGLEI			T			
ARENARIA LANUGINOSA						
ARTEMISIA LUDOVICIANA			T	T		
BAHIA DISSECTA						
BRICKELLIA GRANDIFLORA				T	T	
CHEILANTHES FENDLERI						
COMANDRA UMBELLATA S. PALLIDA						
DESMODIUM ROSEI			T	T		.1
ERIGERON NEOMEXICANUS			T			
GALIUM ASPERRIMUM				1	.1	
GALIUM FENDLERI						
GERANIUM CAESPITOSUM				T		
HEDEOMA HYSSOPIFOLIUM		T				
HIERACIUM FENDLERI				.1		
PENSTEMON BARBATUS		T				
PHASEOLUS WRIGHTII			T	T	T	
SENECIO NEOMEXICANUS		T	.1	T	.1	
SOLIDAGO SPARSIFLORA						
SOLIDAGO WRIGHTII		5				

TREE DATA IN STEMS/375 SQ M. SHRUB, GRASS & HERB DATA AS COVER.
T = SPECIES PRESENT IN TRACE AMOUNTS.
P = SPECIES NOT IN THE PLOT BUT IN THE STAND.

TABLE 37 SOUTH OF MOGOLLON RIM: VEGETATION CHARACTERISTICS -
PINUS PONDEROSA/QUERCUS RUGOSA HT

PLOTS-PI:	D	D	D
-NO:	73	75	79
JUNIPERUS DEPPEANA (Y. REGEN.)			
JUNIPERUS DEPPEANA (A. REGEN.)			
JUNIPERUS DEPPEANA (MATURE)			
JUNIPERUS ERYTHROCARPA (Y.RG.)			
JUNIPERUS ERYTHROCARPA (A.RG.)			
JUNIPERUS ERYTHROCARPA (MAT.)			
PINUS DISCOLOR (YNG. REGEN.)		1	
PINUS DISCOLOR (ADV. REGEN.)			
PINUS DISCOLOR (MATURE)			
PINUS ENGELMANNII (YNG. REGEN)			
PINUS ENGELMANNII (ADV. REGEN)			
PINUS ENGELMANNII (MATURE)			
PINUS LEIOPHYLLA (YNG. REGEN.)			
PINUS LEIOPHYLLA (ADV. REGEN.)			
PINUS LEIOPHYLLA (MATURE)			
PINUS PONDEROSA (YNG. REGEN.)	2	1	
PINUS PONDEROSA (ADV. REGEN.)	14	6	10
PINUS PONDEROSA (MATURE)	9	5	10
PINUS STROBIFORMIS (YNG. REG.)	1	1	
PINUS STROBIFORMIS (ADV. REG.)		3	
PINUS STROBIFORMIS (MATURE)			
PSEUDOTSUGA MENZIESII (Y. REG)	2	1	
PSEUDOTSUGA MENZIESII (A. REG)		1	
PSEUDOTSUGA MENZIESII (MATURE)			
QUERCUS ARIZONICA (Y. REGEN.)			
QUERCUS ARIZONICA (A. REGEN.)			
QUERCUS ARIZONICA (MATURE)			
QUERCUS EMORYI (Y. REGEN.)			
QUERCUS EMORYI (A. REGEN.)			
QUERCUS EMORYI (MATURE)			
QUERCUS GAMBELII (Y. REGEN.)			
QUERCUS GAMBELII (A. REGEN.)			
QUERCUS GAMBELII (MATURE)			
QUERCUS HYPOLEUCOIDES (Y.REG.)			3
QUERCUS HYPOLEUCOIDES (A.REG.)			11
QUERCUS HYPOLEUCOIDES (MATURE)			
QUERCUS RUGOSA (Y. REGEN.)	65	13	80
QUERCUS RUGOSA (A. REGEN.)	11	15	16
QUERCUS RUGOSA (MATURE)			
AGAVE PALMERI			
AGAVE PARRYI			
ARBUTUS ARIZONICA			
ARCTOSTAPHYLOS PRINGLEI			
ARCTOSTAPHYLOS PUNGENS			
CEANOTHUS FENDLERI	.1	T	
CERCOCARPUS MONTANUS	1		
FRAXINUS PENNSYLVANICA			
GARRYA WRIGHTII			
JUGLANS MAJOR			
LONICERA ARIZONICA			
NOLINA MICROCARPA			
PLATANUS WRIGHTII			

TABLE 37 SOUTH OF MOGOLLON RIM: VEGETATION CHARACTERISTICS - PINUS PONDEROSA/QUERCUS RUGOSA HT

PLOTS-PI:	D	D	D
-NO:	73	75	79
PRUNUS SEROTINA SSP. VIRENS			
QUERCUS ARIZONICA			P
QUERCUS EMORYI			
QUERCUS GAMBELII	T		
QUERCUS HYPOLEUCOIDES			2
QUERCUS RUGOSA	20	10	80
QUERCUS TOUMEYI			
RHAMNUS BETULAEFOLIA			
RHUS CHORIOPHYLLA			
RHUS AROMATICA			
ROBINIA NEOMEXICANA	1		
SYMPHORICARPOS OREOPHILUS	P		
VITIS ARIZONICA			
YUCCA SCHOTTII			
ANDROPOGON CIRRATUS			
ARISTIDA ORCUTTIANA			
BLEPHARONEURON TRICHOLEPIS		.1	
BOUTELOUA CURTIPENDULA			
BOUTELOUA GRACILIS			
BROMOPSIS CILIATA	T		
BROMOPSIS PORTERI			
KOELERIA MACRANTHA	1	.1	
MUHLENBERGIA EMERSLEYI			
MUHLENBERGIA LONGILIGULA			.1
MUHLENBERGIA MONTANA	4		
MUHLENBERGIA VIRESCENS	.1	2	
PANICUM BULBOSUM			
PIPTOCHAETIUM FIMBRIATUM			
POA FENDLERIANA			
STIPA PRINGLEI			
ARENARIA LANUGINOSA	T		
ARTEMISIA LUDOVICIANA	T		T
BAHIA DISSECTA	T		
BRICKELLIA GRANDIFLORA			
CHEILANTHES FENDLERI			
COMANDRA UMBELLATA S. PALLIDA	.1		
DESMODIUM ROSEI			
ERIGERON NEOMEXICANUS	T		
GALIUM ASPERRIMUM			
GALIUM FENDLERI	T		
GERANIUM CAESPITOSUM	.1	T	
HEDEOMA HYSSOPIFOLIUM	.1	.1	
HIERACIUM FENDLERI	T		
PENSTEMON BARBATUS	.1		T
PHASEOLUS WRIGHTII			
SENECIO NEOMEXICANUS			
SOLIDAGO SPARSIFLORA			
SOLIDAGO WRIGHTII		T	T

TREE DATA IN STEMS/375 SQ M. SHRUB, GRASS & HERB DATA AS COVER.
T = SPECIES PRESENT IN TRACE AMOUNTS.
P = SPECIES NOT IN THE PLOT BUT IN THE STAND.

TABLE 31 SOUTH OF MOGOLLON RIM: VEGETATION CHARACTERISTICS - PINUS PONDEROSA/BOUTELOUA GRACILIS HT

	PLOTS-PI:	D
	-NO:	81
JUNIPERUS DEPPEANA (Y. REGEN.)		3
JUNIPERUS DEPPEANA (A. REGEN.)		
JUNIPERUS DEPPEANA (MATURE)		
JUNIPERUS ERYTHROCARPA (Y.RG.)		
JUNIPERUS ERYTHROCARPA (A.RG.)		
JUNIPERUS ERYTHROCARPA (MAT.)		
PINUS DISCOLOR (YNG. REGEN.)		5
PINUS DISCOLOR (ADV. REGEN.)		2
PINUS DISCOLOR (MATURE)		
PINUS ENGELMANNII (YNG. REGEN)		
PINUS ENGELMANNII (ADV. REGEN)		
PINUS ENGELMANNII (MATURE)		
PINUS LEIOPHYLLA (YNG. REGEN.)		
PINUS LEIOPHYLLA (ADV. REGEN.)		
PINUS LEIOPHYLLA (MATURE)		
PINUS PONDEROSA (YNG. REGEN.)		5
PINUS PONDEROSA (ADV. REGEN.)		15
PINUS PONDEROSA (MATURE)		3
PINUS STROBIFORMIS (YNG. REG.)		
PINUS STROBIFORMIS (ADV. REG.)		
PINUS STROBIFORMIS (MATURE)		
PSEUDOTSUGA MENZIESII (Y. REG)		
PSEUDOTSUGA MENZIESII (A. REG)		
PSEUDOTSUGA MENZIESII (MATURE)		
QUERCUS ARIZONICA (Y. REGEN.)		
QUERCUS ARIZONICA (A. REGEN.)		
QUERCUS ARIZONICA (MATURE)		
QUERCUS EMORYI (Y. REGEN.)		
QUERCUS EMORYI (A. REGEN.)		
QUERCUS EMORYI (MATURE)		
QUERCUS GAMBELII (Y. REGEN.)		
QUERCUS GAMBELII (A. REGEN.)		P
QUERCUS GAMBELII (MATURE)		
QUERCUS HYPOLEUCOIDES (Y.REG.)		
QUERCUS HYPOLEUCOIDES (A.REG.)		
QUERCUS HYPOLEUCOIDES (MATURE)		
QUERCUS ROBUSA (Y. REGEN.)		
QUERCUS ROBUSA (A. REGEN.)		
QUERCUS ROBUSA (MATURE)		
AGAVE PALMERI		
AGAVE PARRYI		
ARBUTUS ARIZONICA		
ARCTOSTAPHYLOS PRINGLEI		
ARCTOSTAPHYLOS PUNGENS		
CEANOTHUS FENDLERI		
CERCOCARPUS MONTANUS		
FRAXINUS PENNSYLVANICA		
GARRYA WRIGHTII		
JUGLANS MAJOR		
LONICERA ARIZONICA		
NOLINA MICROCARPA		
PLATANUS WRIGHTII		

TABLE 37 SOUTH OF MOGOLLON RIM: VEGETATION CHARACTERISTICS - PINUS PONDEROSA/BOUTELOUA GRACILIS HT

PLOTS-PI: 0
-NO: 81

PRUNUS SEROTINA SSP. VIRENS	
QUERCUS ARIZONICA	
QUERCUS EMORYI	
QUERCUS GAMBELII	
QUERCUS HYPOLEUCOIDES	
QUERCUS RUGOSA	
QUERCUS TOUMEYI	
RHAMNUS BETULAEFOLIA	
RHUS CHORIOPHYLLA	
RHUS AROMATICA	
ROBINIA NEOMEXICANA	
SYMPHORICARPOS OREOPHILUS	.5
VITIS ARIZONICA	
YUCCA SCHOTTII	
ANDROPOGON CIRRATUS	
ARISTIDA ORCUTTIANA	
BLEPHARONEURON TRICHOLEPIS	
BOUTELOUA CURTIPENDULA	
BOUTELOUA GRACILIS	9
BROMOPSIS CILIATA	.1
BROMOPSIS PORTERI	
KOELERIA MACRANTHA	3
MUHLENBERGIA EMERSLEYI	
MUHLENBERGIA LONGILIGULA	.5
MUHLENBERGIA MONTANA	15
MUHLENBERGIA VIRESCENS	
PANICUM BULBOSUM	
PIPTOCHAETIUM FIMBRIATUM	
POA FENDLERIANA	.1
STIPA PRINGLEI	.1
ARENARIA LANUGINOSA	.1
ARTEMISIA LUDOVICIANA	
BAHIA DISSECTA	
BRICKELLIA GRANDIFLORA	
CHEILANTHES FENDLERI	
COMANDRA UMBELLATA S. PALLIDA	
DESMODIUM ROSEI	
ERIGERON NEOMEXICANUS	
GALIUM ASPERRINUM	
GALIUM FENDLERI	
GERANIUM CAESPITOSUM	T
HEDEOMA HYSSOPIFOLIUM	
HIERACIUM FENDLERI	
PENSTEMON BARBATUS	
PHASEOLUS WRIGHTII	
SENECIO NEOMEXICANUS	
SOLIDAGO SPARSIFLORA	5
SOLIDAGO WRIGHTII	

TREE DATA IN STEMS/375 SQ M. SHRUB, GRASS & HERB DATA AS COVER.
T = SPECIES PRESENT IN TRACE AMOUNTS.
P = SPECIES NOT IN THE PLOT BUT IN THE STAND.

TABLE 01 SOUTH OF MOGOLLON RIM: VEGETATION CHARACTERISTICS -
PINUS ENGELMANNII/MUHLENBERGIA LONGILIGULA HT

PLOTS-PI:	0
-NJ:	19
JUNIPERUS DEPPEANA (Y. REGEN.)	4
JUNIPERUS DEPPEANA (A. REGEN.)	
JUNIPERUS DEPPEANA (MATURE)	P
JUNIPERUS ERYTHROCARPA (Y.RG.)	
JUNIPERUS ERYTHROCARPA (A.RG.)	
JUNIPERUS ERYTHROCARPA (MAT.)	
PINUS DISCOLOR (YNG. REGEN.)	3
PINUS DISCOLOR (ADV. REGEN.)	
PINUS DISCOLOR (MATURE)	
PINUS ENGELMANNII (YNG. REGEN)	5
PINUS ENGELMANNII (ADV. REGEN)	2
PINUS ENGELMANNII (MATURE)	2
PINUS LEIOPHYLLA (YNG. REGEN.)	
PINUS LEIOPHYLLA (ADV. REGEN.)	
PINUS LEIOPHYLLA (MATURE)	
PINUS PONDEROSA (YNG. REGEN.)	
PINUS PONDEROSA (ADV. REGEN.)	
PINUS PONDEROSA (MATURE)	
PINUS STROBIFORMIS (YNG. REG.)	
PINUS STROBIFORMIS (ADV. REG.)	
PINUS STROBIFORMIS (MATURE)	
PSEUDOTSUGA MENZIESII (Y. REG)	P
PSEUDOTSUGA MENZIESII (A. REG)	
PSEUDOTSUGA MENZIESII (MATURE)	P
QUERCUS ARIZONICA (Y. REGEN.)	
QUERCUS ARIZONICA (A. REGEN.)	
QUERCUS ARIZONICA (MATURE)	
QUERCUS EMORYI (Y. REGEN.)	
QUERCUS EMORYI (A. REGEN.)	
QUERCUS EMORYI (MATURE)	
QUERCUS GAMBELII (Y. REGEN.)	
QUERCUS GAMBELII (A. REGEN.)	P
QUERCUS GAMBELII (MATURE)	
QUERCUS HYPOLEUCOIDES (Y.REG.)	
QUERCUS HYPOLEUCOIDES (A.REG.)	
QUERCUS HYPOLEUCOIDES (MATURE)	
QUERCUS ROBUSA (Y. REGEN.)	
QUERCUS ROBUSA (A. REGEN.)	
QUERCUS ROBUSA (MATURE)	
AGAVE PALMERI	
AGAVE PARRYI	
ARBUTUS ARIZONICA	
ARCTOSTAPHYLOS PRINGLEI	
ARCTOSTAPHYLOS PUNGENS	
CEANOTHUS FENDLERI	
CERCOCARPUS MONTANUS	1
FRAXINUS PENNSYLVANICA	
GARRYA WRIGHTII	
JUGLANS MAJOR	
LONICERA ARIZONICA	
NOLINA MICROCARPA	
PLATANUS WRIGHTII	

TABLE 37 SOUTH OF MOGOLLON RIM: VEGETATION CHARACTERISTICS - PINUS ENGELMANNII/MUHLENBERGIA LONGILIGULA HT

PLOTS-PI: 8
-ND: 19

PRUNUS SEROTINA SSP. VIRENS	
QUERCUS ARIZONICA	
QUERCUS EMORYI	
QUERCUS GAMBELII	1
QUERCUS HYPOLEUCOIDES	.1
QUERCUS RUGOSA	
QUERCUS TOUMEYI	
RHAMNUS BETULAEFOLIA	
RHUS CHORIOPHYLLA	
RHUS AROMATICA	
ROBINIA NEOMEXICANA	T
SYMPHORICARPOS OREOPHILUS	
VITIS ARIZONICA	
YUCCA SCHOTTII	
ANDROPOGON CIRRATUS	
ARISTIDA ORCUTTIANA	
BLEPHARONEURON TRICHOLEPIS	
BOUTELOUA CURTIPENDULA	
BOUTELOUA GRACILIS	
BROMOPSIS CILIATA	
BROMOPSIS PORTERI	.1
KOELERIA MACRANTHA	1
MUHLENBERGIA EMERSLEYI	
MUHLENBERGIA LONGILIGULA	25
MUHLENBERGIA MONTANA	
MUHLENBERGIA VIRESCENS	
PANICUM BULBOSUM	10
PIPTOCHAETIUM FIMBRIATUM	
POA FENDLERIANA	.1
STIPA PRINGLEI	
ARENARIA LANUGINOSA	
ARTEMISIA LUDOVICIANA	.1
BAHIA DISSECTA	T
BRICKELLIA GRANDIFLORA	
CHEILANTHES FENDLERI	T
COMANDRA UMBELLATA S. PALLIDA	
DESMODIUM ROSEI	
ERIGERON NEOMEXICANUS	
GALIUM ASPERRINUM	.1
GALIUM FENDLERI	T
GERANIUM CAESPITOSUM	
HEDEOMA HYSSOPIFOLIUM	1
HIERACIUM FENDLERI	T
PENSTEMON BARBATUS	
PHASEOLUS WRIGHTII	
SENECIO NEOMEXICANUS	
SOLIDAGO SPARSIFLORA	
SOLIDAGO WRIGHTII	

TREE DATA IN STEMS/375 SQ M. SHRUB, GRASS & HERB DATA AS COVER.
T = SPECIES PRESENT IN TRACE AMOUNTS.
P = SPECIES NOT IN THE PLOT BUT IN THE STAND.

TABLE 01 SOUTH OF MOGOLLON RIM: VEGETATION CHARACTERISTICS - PINUS ENGELMANNII/QUERCUS HYPOLEUCOIDES HT

PLOTS-PI:	0	0	0	0
-NO:	15	20	25	36
JUNIPERUS DEPPEANA (Y. REGEN.)	1	5	13	
JUNIPERUS DEPPEANA (A. REGEN.)				
JUNIPERUS DEPPEANA (MATURE)				
JUNIPERUS ERYTHROCARPA (Y.RG.)				
JUNIPERUS ERYTHROCARPA (A.RG.)				
JUNIPERUS ERYTHROCARPA (MAT.)				
PINUS DISCOLOR (YNG. REGEN.)	2	1	7	
PINUS DISCOLOR (ADV. REGEN.)				
PINUS DISCOLOR (MATURE)				
PINUS ENGELMANNII (YNG. REGEN)	8	4	4	10
PINUS ENGELMANNII (ADV. REGEN)		1	7	3
PINUS ENGELMANNII (MATURE)	4	4	4	8
PINUS LEIOPHYLLA (YNG. REGEN.)			5	1
PINUS LEIOPHYLLA (ADV. REGEN.)			4	
PINUS LEIOPHYLLA (MATURE)				P
PINUS PONDEROSA (YNG. REGEN.)				
PINUS PONDEROSA (ADV. REGEN.)				
PINUS PONDEROSA (MATURE)				
PINUS STROBIFORMIS (YNG. REG.)	1			
PINUS STROBIFORMIS (ADV. REG.)				
PINUS STROBIFORMIS (MATURE)				
PSEUDOTSUGA MENZIESII (Y. REG)	3			
PSEUDOTSUGA MENZIESII (A. REG)				P
PSEUDOTSUGA MENZIESII (MATURE)				
QUERCUS ARIZONICA (Y. REGEN.)			2	
QUERCUS ARIZONICA (A. REGEN.)			2	P
QUERCUS ARIZONICA (MATURE)			1	
QUERCUS EMORYI (Y. REGEN.)				
QUERCUS EMORYI (A. REGEN.)				
QUERCUS EMORYI (MATURE)				
QUERCUS GAMBELII (Y. REGEN.)				
QUERCUS GAMBELII (A. REGEN.)				
QUERCUS GAMBELII (MATURE)				
QUERCUS HYPOLEUCOIDES (Y.REG.)	76	30	50	34
QUERCUS HYPOLEUCOIDES (A.REG.)	71	26	30	27
QUERCUS HYPOLEUCOIDES (MATURE)				P
QUERCUS ROBUSA (Y. REGEN.)	1			
QUERCUS ROBUSA (A. REGEN.)	1			
QUERCUS ROBUSA (MATURE)				
AGAVE PALMERI				
AGAVE PARRYI				P
ARBUTUS ARIZONICA		.1		
ARCTOSTAPHYLOS PRINGLEI				
ARCTOSTAPHYLOS PUNGENS				
CEANOTHUS FENDLERI		1	.1	P
CERCOCARPUS MONTANUS	T			
FRAXINUS PENNSYLVANICA				
GARRYA WRIGHTII			1	
JUGLANS MAJOR				
LONICERA ARIZONICA				
NOLINA MICROCARPA				
PLATANUS WRIGHTII				

TABLE 37 SOUTH OF MOGOLLON RIM: VEGETATION CHARACTERISTICS - PINUS ENGELMANNII/QUERCUS HYPOLEUCOIDES HT

PLOTS-PI:	D	D	D	D
-NO:	15	20	25	30
PRUNUS SEROTINA SSP. VIRENS				
QUERCUS ARIZONICA	1		4	1
QUERCUS EMORYI			1	
QUERCUS GAMBELII		T		
QUERCUS HYPOLEUCOIDES	60	20	35	30
QUERCUS RUGOSA	T			
QUERCUS TOUMEYI				T
RHAMNUS BETULAEFOLIA				
RHUS CHORIOPHYLLA				
RHUS AROMATICA			T	
ROBINIA NEOMEXICANA				
SYMPHORICARPOS OREOPHILUS				
VITIS ARIZONICA				
YUCCA SCHOTTII	P		.1	
ANDROPOGON CIRRATUS				
ARISTIDA ORCUTTIANA				.1
BLEPHARONEURON TRICHOLEPIS				
BOUTELOUA CURTIPENDULA				
BOUTELOUA GRACILIS				
BROMOPSIS CILIATA				
BROMOPSIS PORTERI		T		
KOELERIA MACRANTHA		.1		
MUHLENBERGIA EMERSLEYI				3
MUHLENBERGIA LONGILIGULA	3	15	15	9
MUHLENBERGIA MONTANA				
MUHLENBERGIA VIRESCENS				
PANICUM BULBOSUM		1		
PIPTOCHAETIUM FIMBRIATUM				
POA FENDLERIANA		T		
STIPA PRINGLEI				
ARENARIA LANUGINOSA				
ARTEMISIA LUDOVICIANA		T		
BAHIA DISSECTA				
BRICKELLIA GRANDIFLORA				
CHEILANTHES FENDLERI				
COMANDRA UMBELLATA S. PALLIDA				
DESMODIUM ROSEI		T		
ERIGERON NEOMEXICANUS		T		
GALIUM ASPERRIMUM				
GALIUM FENDLERI				
GERANIUM CAESPITOSUM				
HEDEOMA HYSSOPIFOLIUM		1		
HIERACIUM FENDLERI			T	
PENSTEMON BARBATUS				
PHASEOLUS WRIGHTII				
SENECIO NEOMEXICANUS				
SOLIDAGO SPARSIFLORA				
SOLIDAGO WRIGHTII		T		

TREE DATA IN STEMS/375 SQ M. SHRUB, GRASS & HERB DATA AS COVER.
T = SPECIES PRESENT IN TRACE AMOUNTS.
P = SPECIES NOT IN THE PLOT BUT IN THE STAND.

TABLE 37 SOUTH OF MOGOLLON RIM: VEGETATION CHARACTERISTICS - PINUS ENGELMANNII/QUERCUS ARIZONICA HT

	PLOTS-PI:	D
	-NJ:	40
JUNIPERUS DEPPEANA (Y. REGEN.)		8
JUNIPERUS DEPPEANA (A. REGEN.)		25
JUNIPERUS DEPPEANA (MATURE)		5
JUNIPERUS ERYTHROCARPA (Y.RG.)		
JUNIPERUS ERYTHROCARPA (A.RG.)		
JUNIPERUS ERYTHROCARPA (MAT.)		
PINUS DISCOLOR (YNG. REGEN.)		8
PINUS DISCOLOR (ADV. REGEN.)		
PINUS DISCOLOR (MATURE)		
PINUS ENGELMANNII (YNG. REGEN)		1
PINUS ENGELMANNII (ADV. REGEN)		5
PINUS ENGELMANNII (MATURE)		5
PINUS LEIOPHYLLA (YNG. REGEN.)		8
PINUS LEIOPHYLLA (ADV. REGEN.)		
PINUS LEIOPHYLLA (MATURE)		P
PINUS PONDEROSA (YNG. REGEN.)		
PINUS PONDEROSA (ADV. REGEN.)		
PINUS PONDEROSA (MATURE)		
PINUS STROBIFORMIS (YNG. REG.)		
PINUS STROBIFORMIS (ADV. REG.)		
PINUS STROBIFORMIS (MATURE)		
PSEUDOTSUGA MENZIESII (Y. REG)		
PSEUDOTSUGA MENZIESII (A. REG)		
PSEUDOTSUGA MENZIESII (MATURE)		
QUERCUS ARIZONICA (Y. REGEN.)		
QUERCUS ARIZONICA (A. REGEN.)		5
QUERCUS ARIZONICA (MATURE)		
QUERCUS EMORYI (Y. REGEN.)		
QUERCUS EMORYI (A. REGEN.)		
QUERCUS EMORYI (MATURE)		
QUERCUS GAMBELII (Y. REGEN.)		
QUERCUS GAMBELII (A. REGEN.)		
QUERCUS GAMBELII (MATURE)		
QUERCUS HYPOLEUCOIDES (Y.REG.)		
QUERCUS HYPOLEUCOIDES (A.REG.)		
QUERCUS HYPOLEUCOIDES (MATURE)		
QUERCUS ROBUSA (Y. REGEN.)		
QUERCUS ROBUSA (A. REGEN.)		
QUERCUS ROBUSA (MATURE)		
AGAVE PALMERI		
AGAVE PARRYI		
ARBUTUS ARIZONICA		
ARCTOSTAPHYLOS PRINGLEI		
ARCTOSTAPHYLOS PUNGENS		
CEANOTHUS FENDLERI		
CERCOCARPUS MONTANUS		
FRAXINUS PENNSYLVANICA		
GARRYA WRIGHTII		T
JUGLANS MAJOR		T
LONICERA ARIZONICA		T
NOLINA MICROCARPA		1
PLATANUS WRIGHTII		P

TABLE 37 SOUTH OF MOGOLLON RIM: VEGETATION CHARACTERISTICS - PINUS ENGELMANNII/QUERCUS ARIZONICA HT

	PLOTS-PI:	D
	-NJ:	40
PRUNUS SEROTINA SSP. VIRENS		
QUERCUS ARIZONICA		9
QUERCUS EMORYI		T
QUERCUS GAMBELII		
QUERCUS HYPOLEUCOIDES		T
QUERCUS RUGOSA		
QUERCUS TOUMEYI		
RHAMNUS BETULAEFOLIA		P
RHUS CHORIOPHYLLA		
RHUS AROMATICA		.3
ROBINIA NEOMEXICANA		
SYMPHORICARPOS OREOPHILUS		
VITIS ARIZONICA		2
YUCCA SCHOTTII		.8
ANDROPOGON CIRRATUS		
ARISTIDA ORCUTTIANA		
BLEPHARONEURON TRICHOLEPIS		
BOUTELOUA CURTIPENDULA		
BOUTELOUA GRACILIS		
BROMOPSIS CILIATA		
BROMOPSIS PORTERI		
KOELERIA MACRANTHA		
MUHLENBERGIA EMERSLEYI		
MUHLENBERGIA LONGILIGULA		22
MUHLENBERGIA MONTANA		
MUHLENBERGIA VIRESCENS		
PANICUM BULBOSUM		
PTEROCHAETIUM FIMBRIATUM		2
POA FENDLERIANA		
STIPA PRINGLEI		
ARENARIA LANUGINOSA		
ARTEMISIA LUDOVICIANA		
BAHIA DISSECTA		
BRICKELLIA GRANDIFLORA		
CHEILANTHES FENDLERI		
COMANDRA UMBELLATA S. PALLIDA		
DESMODIUM ROSEI		
ERIGERON NEOMEXICANUS		
GALIUM ASPERRINUM		T
GALIUM FENDLERI		T
GERANIUM CAESPITOSUM		T
HEDEOMA HYSSOPIFOLIUM		
HIERACIUM FENDLERI		
PENSTEMON BARBATUS		P
PHASEOLUS WRIGHTII		
SENECIO NEOMEXICANUS		T
SOLIDAGO SPARSIFLORA		P
SOLIDAGO WRIGHTII		

TREE DATA IN STEMS/375 SQ M. SHRUB, GRASS & HERB DATA AS COVER.
T = SPECIES PRESENT IN TRACE AMOUNTS.
P = SPECIES NOT IN THE PLOT BUT IN THE STAND.

TABLE 37 SOUTH OF MOGOLLON RIM: VEGETATION CHARACTERISTICS - PINUS LEIOPHYLLA/QUERUS TOUMEYI HT

	PLOTS-PI: D -NO: 22
JUNIPERUS DEPPEANA (Y. REGEN.)	
JUNIPERUS DEPPEANA (A. REGEN.)	1
JUNIPERUS DEPPEANA (MATURE)	
JUNIPERUS ERYTHROCARPA (Y.RG.)	
JUNIPERUS ERYTHROCARPA (A.RG.)	
JUNIPERUS ERYTHROCARPA (MAT.)	
PINUS DISCOLOR (YNG. REGEN.)	3
PINUS DISCOLOR (ADV. REGEN.)	3
PINUS DISCOLOR (MATURE)	
PINUS ENGELMANNII (YNG. REGEN)	
PINUS ENGELMANNII (ADV. REGEN)	
PINUS ENGELMANNII (MATURE)	
PINUS LEIOPHYLLA (YNG. REGEN.)	1
PINUS LEIOPHYLLA (ADV. REGEN.)	6
PINUS LEIOPHYLLA (MATURE)	2
PINUS PONDEROSA (YNG. REGEN.)	
PINUS PONDEROSA (ADV. REGEN.)	
PINUS PONDEROSA (MATURE)	
PINUS STROBIFORMIS (YNG. REG.)	
PINUS STROBIFORMIS (ADV. REG.)	
PINUS STROBIFORMIS (MATURE)	
PSEUDOTSUGA MENZIESII (Y. REG)	
PSEUDOTSUGA MENZIESII (A. REG)	
PSEUDOTSUGA MENZIESII (MATURE)	
QUERCUS ARIZONICA (Y. REGEN.)	
QUERCUS ARIZONICA (A. REGEN.)	
QUERCUS ARIZONICA (MATURE)	
QUERCUS EMORYI (Y. REGEN.)	
QUERCUS EMORYI (A. REGEN.)	
QUERCUS EMORYI (MATURE)	
QUERCUS GAMBELII (Y. REGEN.)	
QUERCUS GAMBELII (A. REGEN.)	
QUERCUS GAMBELII (MATURE)	
QUERCUS HYPOLEUCOIDES (Y.REG.)	4
QUERCUS HYPOLEUCOIDES (A.REG.)	
QUERCUS HYPOLEUCOIDES (MATURE)	
QUERCUS RUGOSA (Y. REGEN.)	
QUERCUS RUGOSA (A. REGEN.)	
QUERCUS RUGOSA (MATURE)	
AGAVE PALMERI	.1
AGAVE PARRYI	
ARBUTUS ARIZONICA	
ARCTOSTAPHYLOS PRINGLEI	
ARCTOSTAPHYLOS PUNGENS	25
CEANOTHUS FENDLERI	
CERCOCARPUS MONTANUS	
FRAXINUS PENNSYLVANICA	
GARRYA WRIGHTII	1
JUGLANS MAJOR	
LONICERA ARIZONICA	
NOLINA MICROCARPA	1
PLATANUS WRIGHTII	

TABLE 31 SOUTH OF MOGOLLON RIM: VEGETATION CHARACTERISTICS - PINUS LEIOPHYLLA/QUERCUS TOUMEYI HT

PLOTS-PI:	0
-NU:	22
PRUNUS SEROTINA SSP. VIRENS	
QUERCUS ARIZONICA	
QUERCUS EMORYI	
QUERCUS GAMBELII	
QUERCUS HYPOLEUCOIDES	2
QUERCUS RUGOSA	
QUERCUS TOUMEYI	10
RHAMNUS BETULAEFOLIA	
RHUS CHORIOPHYLLA	
RHUS AROMATICA	
ROBINIA NEOMEXICANA	
SYMPHORICARPOS OREOPHILUS	
VITIS ARIZONICA	
YUCCA SCHOTTII	.1
ANDROPOGON CIRRATUS	2
ARISTIDA PURPURIANA	.1
BLEPHARONEURON TRICHOLEPIS	
BOUTELOUA CURTIPENDULA	
BOUTELOUA GRACILIS	
BROMOPSIS CILIATA	
BROMOPSIS PORTERI	
KOELERIA MACRANTHA	
MUHLENBERGIA EMERSLEYI	8
MUHLENBERGIA LONGILIGULA	
MUHLENBERGIA MONTANA	
MUHLENBERGIA VIRESCENS	
PANICUM BULBOSUM	
PIPTOCHAETIUM FIMBRIATUM	
POA FENDLERIANA	
STIPA PRINGLEI	
ARENARIA LANUGINOSA	
ARTEMISIA LUDOVICIANA	
BAHIA DISSECTA	
BRICKELLIA GRANDIFLORA	
CHEILANTHES FENDLERI	
COMANDRA UMBELLATA S. PALLIDA	
DESMODIUM ROSEI	
ERIGERON NEOMEXICANUS	
GALIUM ASPERRINUM	
GALIUM FENDLERI	
GERANIUM CAESPITOSUM	
HEDEOMA HYSSOPIFOLIUM	
HIERACIUM FENDLERI	
PENSTEMON BARBATUS	
PHASEOLUS WRIGHTII	1
SENECIO NEOMEXICANUS	
SOLIDAGO SPARSIFLORA	
SOLIDAGO WRIGHTII	

TREE DATA IN STEMS/375 SQ M. SHRUB, GRASS & HERB DATA AS COVER.
T = SPECIES PRESENT IN TRACE AMOUNTS.
P = SPECIES NOT IN THE PLOT BUT IN THE STAND.

Table A-4. Locations and site characteristics for the forest habitat type plots south of the Mogollon Rim. Table numbers for the major habitat types correspond to their numerical designations given in the text. Tables for other (minor) habitat types follow the major habitat types in each series and are designated by OT.

LOCATION AND SITE CHARACTERISTICS

FORESTS SOUTH OF THE MOGOLLON RIM: PIEN AND ABLA SERIES

TABLE 1. .1. S. OF MOGOLLON RIM: LOCATIONS FOR PLOTS IN THE ABIES LASIOCARPA/MOSS HT

PLOT NO.	STATE	PHYSIOGR. PROV.	NAT. FOR.	RANGER DIST.	LOCALITY
M 397	AZ	PINALENO MTNS	CORONADO	SAFFORD	GRAHAM-PLAIN VW PKS
M 399	AZ	PINALENO MTNS	CORONADO	SAFFORD	CIENEGA SPR. CK.

TABLE 1 .2. S. OF MOGOLLON RIM: SITE CHARACTERISTICS FOR PLOTS IN THE ABIES LASIOCARPA/MOSS HT

PLOT NO.	ELEVATION (M)	(FT)	SLOPE (%)	ASPECT DEG	COS	LANDFORM CODE	STONINESS	PER CENT GROUND COVER SOIL	ROCK	MOSS	VASC	LITT
M 397	3108	10200	27	220	0.00	2	2	0	4	3	0	93
M 399	3063	10050	33	150	0.74	3	4	0	25	3	0	72

LANDFORM CODES: 1=RIDGE,2=UPPER SIDE SLOPE,3=MIDESLOPE,4=LOWER SLOPE, 5=BENCH,6=STREAMSIDE,&7=OTHER AND TWO NUMBERS IMPLY TRANSITIONS.

ASPECT COSINE TRANSFORM AFTER BEERS, ET AL.(1966), WHERE NE=2 & SW=0

TABLE 1 .3. S. OF MOGOLLON RIM: SOIL CLASSIFICATION FOR PLOTS IN THE ABIES LASIOCARPA/MOSS HT

PLOT NO.	MOIST. REGIME	TEMP. REGIME	SUBGROUP
M 397			NOT CLASSIFIED
M 399			NOT CLASSIFIED

TABLE 12 .1. S. OF MOGOLLON RIM: LOCATIONS FOR PLOTS IN THE PICEA ENGELMANNII/ACER GLABRUM HT

PLOT NO.	STATE	PHYSIOGR. PROV.	NAT. FOR.	RANGER DIST.	LOCALITY
M 405	AZ	CHIRICAHUA MTNS	CORONADO	DOUGLAS	CIMA CABIN
D 8	AZ	CHIRICAHUA MTNS	CORONADO	DOUGLAS	FLY PEAK
D 9	AZ	CHIRICAHUA MTNS	CORONADO	DOUGLAS	ROUND PARK
D 34	AZ	CHIRICAHUA MTNS	CORONADO	DOUGLAS	RASPBERRY RIDGE

TABLE 2 .2. S. OF MOGOLLON RIM: SITE CHARACTERISTICS FOR PLOTS IN THE PICEA ENGELMANNII/ACER GLABRUM HT

PLOT NO.	ELEVATION (M)	ELEVATION (FT)	SLOPE (%)	ASPECT DEG	ASPECT COS	LANDFORM CODE	STONINESS	PER CENT GROUND COVER SOIL	ROCK	MOSS	VASC	LITTE
M 406	2773	9100	47	36	1.99	3	0	0	0	4	0	96
0 6	2880	9450	30	5	1.77	3	2	0	T	3	0	96
0 9	2880	9450	32	55	1.98	3	1	T	T	4	T	96
0 34	2804	9200	40	74	1.87	2	3	T	5	3	T	92

LANDFORM CODES: 1=RIDGE,2=UPPER SIDE SLOPE,3=MIDESLOPE,4=LOWER SLOPE, 5=BENCH,6=STREAMSIDE,&7=OTHER AND TWO NUMBERS IMPLY TRANSITIONS.

ASPECT COSINE TRANSFORM AFTER BEERS, ET AL.(1966), WHERE NE=2 & SW=0

TABLE 2 .3. S. OF MOGOLLON RIM: SOIL CLASSIFICATION FOR PLOTS IN THE PICEA ENGELMANNII/ACER GLABRUM HT

PLOT NO.	MOIST. REGIME	TEMP. REGIME	SUBGROUP
M 405			NOT CLASSIFIED
D 3	UDIC	CRYIC	DYSTRIC CRYOCHREPT
D 9	UDIC	CRYIC	DYSTRIC CRYOCHREPT
D 34	UDIC	CRYIC	DYSTRIC CRYOCHREPT

TABLE OT.1. S. OF MOGOLLON RIM: LOCATIONS FOR PLOTS IN THE ABIES LASIOCARPA/VACCINIUM MYRTILLUS HT

PLOT NO.	STATE	PHYSIOGR. PROV.	NAT. FOR.	RANGER DIST.	LOCALITY
M 398	AZ	PINALENO MTNS	CORONADO	SAFFORD	UPPER DEADMAN CAN.

TABLE OT.2. S. OF MOGOLLON RIM: SITE CHARACTERISTICS FOR PLOTS IN THE ABIES LASIOCARPA/VACCINIUM MYRTILLUS HT

PLOT NO.	ELEVATION (M)	(FT)	SLOPE (%)	ASPECT DEG	COS	LANDFORM CODE	STONINESS	PER CENT GROUND COVER SOIL	ROCK	MOSS	VASC	LITTE
M 398	3047	10000	37	7	1.79	3	4	0	20	30	1	49

LANDFORM CODES: 1=RIDGE,2=UPPER SIDE SLOPE,3=MIDESLOPE,4=LOWER SLOPE, 5=BENCH,6=STREAMSIDE,&7=OTHER AND TWO NUMBERS IMPLY TRANSITIONS.

ASPECT COSINE TRANSFORM AFTER BEERS, ET AL.(1966), WHERE NE=2 & SW=0

TABLE 67.3. S. OF MOGOLLON RIM: SOIL CLASSIFICATION FOR PLOTS IN THE ABIES LASIOCARPA/VACCINIUM MYRTILLUS HT

PLOT NO.	MOIST. REGIME	TEMP. REGIME	SUBGROUP
M 393			NOT CLASSIFIED

TABLE APPT.1. S. OF MOGOLLON RIM: LOCATIONS FOR PLOTS IN THE PICEA ENGELMANNII/CAREX FOENEA HT

PLOT NO.	STATE	PHYSIOGR. PROV.	NAT. FOR.	RANGER DIST.	LOCALITY
M 400	AZ	PINALENO MTNS	CORONADO	SAFFORD	PLAIN VIEW PEAK
M 401	AZ	PINALENO MTNS	CORONADO	SAFFORD	PLAIN VIEW PEAK

TABLE OT.2. S. OF MOGOLLON RIM: SITE CHARACTERISTICS FOR PLOTS IN THE PICEA ENGELMANNII/CAREX FOENEA HT

PLOT NO.	ELEVATION (M)	ELEVATION (FT)	SLOPE (%)	ASPECT DEG	ASPECT COS	LANDFORM CODE	STONINESS	PER CENT GROUND COVER SOIL	ROCK	MOSS	VASC	LITTE
4 400	3108	10200	42	194	0.14	3	2	20	6	2	0	72
5 401	3108	10200	25	173	0.38	12	0	0	0	0	20	80

LANDFORM CODES: 1=RIDGE,2=UPPER SIDE SLOPE,3=MIDESLOPE,4=LOWER SLOPE, 5=BENCH,6=STREAMSIDE,&7=OTHER AND TWO NUMBERS IMPLY TRANSITIONS.

ASPECT COSINE TRANSFORM AFTER BEERS, ET AL.(1966), WHERE NE=2 & SW=0

TABLE 10T.3. S. OF MOGOLLON RIM: SOIL CLASSIFICATION FOR PLOTS IN THE PICEA ENGELMANNII/CAREX FOENEA HT

PLOT NO.	MOIST. REGIME	TEMP. REGIME	SUBGROUP
M 400			NOT CLASSIFIED
M 401			NOT CLASSIFIED

LOCATION AND SITE CHARACTERISTICS

FORESTS SOUTH OF THE MOGOLLON RIM: ABCO AND PSME SERIES

TABLE 3 .1. S. OF MOGOLLON RIM: LOCATIONS FOR PLOTS IN THE ABIES CONCOLOR/ACER GLABRUM HT

PLOT NO.	STATE	PHYSIOGR. PROV.	NAT. FOR.	RANGER DIST.	LOCALITY
M 386	AZ	CHIRICAHUA MTNS	CORONADO	DOUGLAS	SNOWSHED PK. AREA
M 391	AZ	PINALENO MTNS	CORONADO	SAFFORD	GOODY RNA
O 72	AZ	PINALENO MTNS	CORONADO	SAFFORD	POST CR AT RIGGS RD

TABLE 3.2. S. OF MOGOLLON RIM: SITE CHARACTERISTICS FOR PLOTS IN THE ABIES CONCOLOR/ACER GLABRUM HT

PLOT NO.	ELEVATION (M)	ELEVATION (FT)	SLOPE (%)	ASPECT DEG	ASPECT COS	LANDFORM CODE	STONINESS	PER CENT GROUND COVER SOIL	ROCK	MOSS	VASC	LITT
1	336	2712	8900	58	35	1.98	2	3	1	15	0	0	84
4	391	2804	9200	30	245	0.06	2	2	0	3	0	1	96
0	72	2791	9160	23	302	0.78	34	3	1	3	4	2	91

LANDFORM CODES: 1=RIDGE,2=UPPER SIDE SLOPE,3=MIDESLOPE,4=LOWER SLOPE, 5=BENCH,6=STREAMSIDE,&7=OTHER AND TWO NUMBERS IMPLY TRANSITIONS.

ASPECT COSINE TRANSFORM AFTER BEERS, ET AL.(1966), WHERE NE=2 & SW=0

TABLE 3.3.5. OF MOGOLLON RIM: SOIL CLASSIFICATION FOR PLOTS IN THE ABIES CONCOLOR/ACER GLABRUM HT

PLOT NO.	MOIST. REGIME	TEMP. REGIME	SUBGROUP
M 386			NOT CLASSIFIED
M 391			NOT CLASSIFIED
J 72	UDIC	FRIGID	TYPIC ARGIBOROLL

TABLE 4 .1. S. OF MOGOLLON RIM: LOCATIONS FOR PLOTS IN THE ABIES CONCOLOR/SPARSE HT

PLOT NO.	STATE	PHYSIOGR. PROV.	NAT. FOR.	RANGER DIST.	LOCALITY
M 385	AZ	CHIRICAHUA MTNS	CORONADO	DOUGLAS	SNOWSHED PK. AREA
M 387	AZ	CHIRICAHUA MTNS	CORONADO	DOUGLAS	SNOWSHED PK. AREA
M 394	AZ	PINALENO MTNS	CORONADO	SAFFORD	POST CREEK
M 395	AZ	PINALENO MTNS	CORONADO	SAFFORD	GRANT CREEK
M 402	AZ	PINALENO MTNS	CORONADO	SAFFORD	HELIOGRAPH PEAK
M 404	AZ	CHIRICAHUA MTNS	CORONADO	DOUGLAS	RUSTLER PARK

TABLE 4.2. S. OF MOGOLLON RIM: SITE CHARACTERISTICS FOR PLOTS IN THE ABIES CONCOLOR/SPARSE HT

PLOT NO.	ELEVATION (M)	ELEVATION (FT)	SLOPE (%)	ASPECT DEG	ASPECT COS	LANDFORM CODE	STONINESS	PER CENT GROUND COVER SOIL	ROCK	MOSS	VASC	LITTE
M 385	2682	8800	64	59	1.97	2	2	4	4	2	0	90
M 387	2712	8900	54	5	1.77	2	2	0	10	5	0	85
M 394	2788	9150	35	127	1.14	4	1	0	1	0	0	99
M 396	2697	8850	58	275	0.36	3	0	1	8	6	0	85
M 402	2788	9150	42	265	0.23	3	2	0	3	0	0	97
M 404	2590	8500	41	13	1.85	3	0	0	1	0	0	99

LANDFORM CODES: 1=RIDGE,2=UPPER SIDE SLOPE,3=MIDESLOPE,4=LOWER SLOPE, 5=BENCH,6=STREAMSIDE,&7=OTHER AND TWO NUMBERS IMPLY TRANSITIONS.

ASPECT\COSINE TRANSFORM AFTER BEERS, ET AL.(1966), WHERE NE=2 & SW=0

TABLE 4 .3. S. OF MOGOLLON RIM: SOIL CLASSIFICATION FOR PLOTS IN THE ABIES CONCOLOR/SPARSE HT

PLOT NO.	MOIST. REGIME	TEMP. REGIME	SUBGROUP
M 385			NOT CLASSIFIED
M 387			NOT CLASSIFIED
M 394			NOT CLASSIFIED
M 395			NOT CLASSIFIED
M 402			NOT CLASSIFIED
M 404			NOT CLASSIFIED

TABLE 5.1. S. OF MOGOLLON RIM: LOCATIONS FOR PLOTS IN THE ABIES CONCOLOR/QUERCUS GAMBELII HT

PLOT NO.	STATE	PHYSIOGR. PROV.	NAT. FOR.	RANGER DIST.	LOCALITY
M 377	AZ	CHIRICAHUA MTNS	CORONADO	DOUGLAS	PINERY CANYON

TABLE 5 .2. S. OF MOGOLLON RIM: SITE CHARACTERISTICS FOR PLOTS IN THE ABIES CONCOLOR/QUERCUS GAMBELII HT

PLOT NO.	ELEVATION (M)	ELEVATION (FT)	SLOPE (%)	ASPECT DEG	ASPECT COS	LANDFORM CODE	STONINESS	PER CENT GROUND COVER SOIL	ROCK	MOSS	VASC	LITT
M 577	2170	7120	17	307	0.86	6	3	1	15	0	3	8

LANDFORM CODES: 1=RIDGE,2=UPPER SIDE SLOPE,3=MIDESLOPE,4=LOWER SLOPE, 5=BENCH,6=STREAMSIDE,&7=OTHER AND TWO NUMBERS IMPLY TRANSITIONS.

ASPECT COSINE TRANSFORM AFTER BEERS, ET AL.(1966), WHERE NE=2 & SW=0

TABLE 5.3. S. OF MOGOLLON RIM: SOIL CLASSIFICATION FOR PLOTS IN THE ABIES CONCOLOR/QUERCUS GAMBELII HT

PLOT NO.	MOIST. REGIME	TEMP. REGIME	SUBGROUP
M 377			NOT CLASSIFIED

TABLE 6 .1. S. OF MOGOLLON RIM: LOCATIONS FOR PLOTS IN THE ABIES CONCOLOR/ACER GRANDIDENTATUM HT

PLOT NO.	STATE	PHYSIOGR. PROV.	NAT. FOR.	RANGER DIST.	LOCALITY
0 43	AZ	PINALENO MTNS	CORONADO	SAFFORD	WET CANYON

TABLE 6.2. S. OF MOGOLLON RIM: SITE CHARACTERISTICS FOR PLOTS IN THE ABIES CONCOLOR/ACER GRANDIDENTATUM HT

PLOT NO.	ELEVATION (M)	ELEVATION (FT)	SLOPE (%)	ASPECT DEG	ASPECT COS	LANDFORM CODE	STONINESS	PER CENT GROUND COVER SOIL	ROCK	MOSS	VASC	LITTE
43	2139	7020	44	85	1.77	4	3	0	6	1	1	92

LANDFORM CODES: 1=RIDGE,2=UPPER SIDE SLOPE,3=MIDESLOPE,4=LOWER SLOPE, 5=BENCH,6=STREAMSIDE,&7=OTHER AND TWO NUMBERS IMPLY TRANSITIONS.

ASPECT COSINE TRANSFORM AFTER BEERS, ET AL.(1966), WHERE NE=2 & SW=0

TABLE 6.3.5. OF MOGOLLON RIM: SOIL CLASSIFICATION FOR PLOTS IN THE ABIES CONCOLOR/ACER GRANDIDENTATUM HT

PLOT NO.	MOIST. REGIME	TEMP. REGIME	SUBGROUP
D 43	UDIC	FRIGID	EUTRIC GLOSSOBORALF

TABLE 7.1. S. OF MOGOLLON RIM: LOCATIONS FOR PLOTS IN THE PSEUDOTSUGA MENZIESII/MUHLENBERGIA VIRESCENS HT

PLOT NO.	STATE	PHYSIOGR. PROV.	NAT. FOR.	RANGER DIST.	LOCALITY
M 381	AZ	CHIRICAHUA MTNS	CORONADO	DOUGLAS	SENTINAL PEAK
M 382	AZ	CHIRICAHUA MTNS	CORONADO	DOUGLAS	SENTINAL PEAK
M 383	AZ	CHIRICAHUA MTNS	CORONADO	DOUGLAS	CREST TR. 5270
M 384	AZ	CHIRICAHUA MTNS	CORONADO	DOUGLAS	PRICE CAN. TR. 5224
M 388	AZ	CHIRICAHUA MTNS	CORONADO	DOUGLAS	SENTINAL PEAK
M 389	AZ	CHIRICAHUA MTNS	CORONADO	DOUGLAS	SENTINAL PEAK
M 405	AZ	CHIRICAHUA MTNS	CORONADO	DOUGLAS	BOOTLEGGER SADDLE
M 407	AZ	CHIRICAHUA MTNS	CORONADO	DOUGLAS	CIMA CABIN
D 10	AZ	CHIRICAHUA MTNS	CORONADO	DOUGLAS	DEER SPRING

TABLE 7.2. S. OF MOGOLLON RIM: SITE CHARACTERISTICS FOR PLOTS IN THE PSEUDOTSUGA MENZIESII/MUHLENBERGIA VIRESCENS HT

PLOT NO.	ELEVATION (M)	ELEVATION (FT)	SLOPE (%)	ASPECT DEG	ASPECT COS	LANDFORM CODE	STONINESS	PER CENT GROUND COVER SOIL	ROCK	MOSS	VASC	LIT
M 381	2651	8700	56	217	0.01	2	1	15	0	0	2	8
M 382	2651	8700	52	106	1.48	2	0	1	0	T	2	9
M 383	2773	9100	20	283	0.47	12	+	0	15	0	2	8
M 384	2682	8800	58	227	0.00	2	1	6	0	0	3	9
M 388	2560	8400	60	66	1.93	3	1	0	8	0	5	8
M 389	2438	8000	45	70	1.91	3	2	0	3	0	10	8
M 405	2682	8800	60	240	0.03	2	4	2	10	0	5	8
M 407	2712	8900	53	160	0.58	3	1	0	1	0	10	8
O 10	2834	9300	47	225	0.00	2	2	T	16	T	T	8

LANDFORM CODES: 1=RIDGE,2=UPPER SIDE SLOPE,3=MIDESLOPE,4=LOWER SLOPE, 5=BENCH,6=STREAMSIDE,7=OTHER AND TWO NUMBERS IMPLY TRANSITIONS.

ASPECT COSINE TRANSFORM AFTER BEERS, ET AL.(1966), WHERE NE=2 & SW=0

TABLE 7 .3. S. OF MOGOLLON RIM: SOIL CLASSIFICATION FOR PLOTS IN THE PSEUDOTSUGA MENZIESII/MUHLENBERGIA VIRESCENS HT

PLOT NO.	MOIST. REGIME	TEMP. REGIME	SUBGROUP
M 381			NOT CLASSIFIED
M 382			NOT CLASSIFIED
M 383			NOT CLASSIFIED
M 384			NOT CLASSIFIED
M 388			NOT CLASSIFIED
M 389			NOT CLASSIFIED
M 405			NOT CLASSIFIED
M 407			NOT CLASSIFIED
D 10	UDIC	FRIGID	UDIC USTOCHREPT

TABLE 8 .1. S. OF MOGOLLON RIM: LOCATIONS FOR PLOTS IN THE PSEUDOTSUGA MENZIESII/QUERCUS GAMBELII HT

PLOT NO.	STATE	PHYSIOGR. PROV.	NAT. FOR.	RANGER DIST.	LOCALITY
M 378	AZ	CHIRICAHUA MTNS	CORONADO	DOUGLAS	S FORK CANYON TRAI
M 390	AZ	CHIRICAHUA MTNS	CORONADO	DOUGLAS	S FK CN TR-BURNT S
M 982	AZ	SIERRA ANCHA	TONTO	YOUNG	S FK PARKER CREEK
O 14	AZ	CHIRICAHUA MTNS	CORONADO	DOUGLAS	HERB MARTYR-SNOWSH
O 37	AZ	CHIRICAHUA MTNS	CORONADO	DOUGLAS	SILVER PEAK TRAIL
O 38	AZ	CHIRICAHUA MTNS	CORONADO	DOUGLAS	UNION SADDLE
O 56	AZ	PINAL MTNS	TONTO	GLOBE	PINAL PEAK ROAD
O 62	AZ	GALIURO MTNS	CORONADO	SAFFORD	KENNEDY PK TRAIL
O 64	AZ	PINALENO MTNS	CORONADO	SAFFORD	.5 ME W TURKEY SPR
O 69	AZ	PINALENO MTNS	CORONADO	SAFFORD	DUTCH HENRY CN. TR

TABLE 8.2. S. OF MOGOLLON RIM: SITE CHARACTERISTICS FOR PLOTS IN THE PSEUDOTSUGA MENZIESII/QUERCUS GAMBELII HT

PLOT NO.	ELEVATION (M)	ELEVATION (FT)	SLOPE (%)	ASPECT DEG	ASPECT COS	LANDFORM CODE	STONINESS	PER CENT GROUND COVER SOIL	ROCK	MOSS	VASC	LITTE
M 378	2133	7000	20	40	2.00	6	3	0	15	1	3	81
M 390	2316	7600	30	61	1.96	46	1	2	1	1	1	95
M 982	1920	6300	40	40	2.00	3						
O 14	2194	7200	32	332	1.29	23	2	1	4	1	4	90
O 37	2072	6800	50	348	1.54	4	3	T	17	2	1	64
O 38	2316	7600	45	75	1.87	3	2	0	2	1	1	96
O 56	2170	7120	41	320	1.09	3	3	4	3	1	2	90
O 62	2133	7000	55	345	1.50	23	4	4	20	1	3	72
O 64	2255	7400	54	22	1.92	3	4	T	10	T	5	85
O 69	2237	7340	53	50	2.00	2	3	3	7	1	1	88

LANDFORM CODES: 1=RIDGE,2=UPPER SIDE SLOPE,3=MIDESLOPE,4=LOWER SLOPE, 5=BENCH,6=STREAMSIDE,&7=OTHER AND TWO NUMBERS IMPLY TRANSITIONS.

ASPECT COSINE TRANSFORM AFTER BEERS, ET AL.(1966), WHERE NE=2 & SW=0

TABLE 8 .3. S. OF MOGOLLON RIM: SOIL CLASSIFICATION FOR PLOTS IN THE PSEUDOTSUGA MENZIESII/QUERCUS GAMBELII HT

PLOT NO.	MOIST. REGIME	TEMP. REGIME	SUBGROUP
M 373			NOT CLASSIFIED
M 390			NOT CLASSIFIED
M 982			NOT CLASSIFIED
O 14	UDIC	FRIGID	TYPIC ARGIBOROLL
O 37	UDIC	FRIGID	PACHIC UDIC HAPLOBOROLL
O 38	UDIC	FRIGID	LITHIC ARGIBOROLL
O 56	UDIC	FRIGID	TYPIC HAPLOBOROLL
O 62	UDIC	FRIGID	LITHIC HAPLOBOROLL
O 64	UDIC	FRIGID	TYPIC HAPLOBOROLL
O 69	UDIC	FRIGID	TYPIC DYSTROCHREPT

TABLE 9 .1. S. OF MOGOLLON RIM: LOCATIONS FOR PLOTS IN THE PSEUDOTSUGA MENZIESII/QUERCUS HYPOLEUCOIDES HT

PLOT NO.	STATE	PHYSIOGR. PROV.	NAT. FOR.	RANGER DIST.	LOCALITY
M 375	AZ	CHIRICAHUA MTNS	CORONADO	DOUGLAS	ONION SADDLE
M 403	AZ	CHIRICAHUA MTNS	CORONADO	DOUGLAS	E. OF ONION SADDLE

TABLE 9 .2. S. OF MOGOLLON RIM: SITE CHARACTERISTICS FOR PLOTS IN THE PSEUDOTSUGA MENZIESII/QUERCUS HYPOLEUCOIDES HT

PLOT NO.	ELEVATION (M)	(FT)	SLOPE (%)	ASPECT DEG	COS	LANDFORM CODE	STONI-NESS	PER CENT GROUND COVER SOIL	ROCK	MOSS	VASC	LITT
1 376	2346	7700	28	94	1.66	3		0	3	0	8	89
4 403	2270	7450	70	70	1.91	3	2	7	15	0	10	58

LANDFORM CODES: 1=RIDGE,2=UPPER SIDE SLOPE,3=MIDESLOPE,4=LOWER SLOPE, 5=BENCH,6=STREAMSIDE,&7=OTHER AND TWO NUMBERS IMPLY TRANSITIONS.

ASPECT COSINE TRANSFORM AFTER BEERS, ET AL.(1966), WHERE NE=2 & SW=0

TABLE 9 .3. S. OF MOGOLLON RIM: SOIL CLASSIFICATION FOR PLOTS IN THE PSEUDOTSUGA MENZIESII/QUERCUS HYPOLEUCOIDES HT

PLOT NO.	MOIST. REGIME	TEMP. REGIME	SUBGROUP
M 373			NOT CLASSIFIED
M 403			NOT CLASSIFIED

TABLE APT.1. S. OF MOGOLLON RIM: LOCATIONS FOR PLOTS IN THE ABIES CONCOLOR/CAREX FOENEA HT

PLOT NO.	STATE	PHYSIOGR. PROV.	NAT. FOR.	RANGER DIST.	LOCALITY
M 393	AZ	PINALENO MTNS	CORONADO	SAFFORD	SOLDIER CREEK
M 395	AZ	PINALENO MTNS	CORONADO	SAFFORD	POST CREEK

TABLE 0T.2. S. OF MOGOLLON RIM: SITE CHARACTERISTICS FOR PLOTS IN THE ABIES CONCOLOR/CAREX FOENEA HT

PLOT NO.	ELEVATION (M)	ELEVATION (FT)	SLOPE (%)	ASPECT DEG	ASPECT COS	LANDFORM CODE	STONINESS	PER CENT GROUND COVER SOIL	ROCK	MOSS	VASC	LITTE
1 393	2880	9450	23	251	0.10	3	1	0	1	0	15	84
4 395	2773	9100	21	180	0.29	45	0	0	0	0	15	85

LANDFORM CODES: 1=RIDGE,2=UPPER SIDE SLOPE,3=MIDESLOPE,4=LOWER SLOPE, 5=BENCH,6=STREAMSIDE,&7=OTHER AND TWO NUMBERS IMPLY TRANSITIONS.

ASPECT COSINE TRANSFORM AFTER BEERS, ET AL.(1966), WHERE NE=2 & SW=0

TABLE 0T.3. S. OF MOGOLLON RIM: SOIL CLASSIFICATION FOR PLOTS IN THE ABIES CONCOLOR/CAREX FOENEA HT

PLOT NO.	MOIST. REGIME	TEMP. REGIME	SUBGROUP
M 393			NOT CLASSIFIED
M 395			NOT CLASSIFIED

TABLE 107.1. S. OF MOGOLLON RIM: LOCATIONS FOR PLOTS IN THE PSEUDOTSUGA MENZIESII/QUERCUS HYPOGEA HT

PLOT NO.	STATE	PHYSIOGR. PROV.	NAT. FOR.	RANGER DIST.	LOCALITY
0 73	AZ	PINALENO MTNS	CORONADO	SAFFORD	LADYBUG PEAK

TABLE OT.2. S. OF MOGOLLON RIM: SITE CHARACTERISTICS FOR PLOTS IN THE

PSEUDOTSUGA MENZIESII/QUERCUS RUGOSA HT

PLOT NO.	ELEVATION (M)	ELEVATION (FT)	SLOPE (%)	ASPECT DEG	ASPECT COS	LANDFORM CODE	STONINESS	PER CENT GROUND COVER SOIL	ROCK	MOSS	VASC	LITT
78	2651	8700	47	165	0.50	3	3	T	20	T	2	78

LANDFORM CODES: 1=RIDGE,2=UPPER SIDE SLOPE,3=MIDESLOPE,4=LOWER SLOPE,
5=BENCH,6=STREAMSIDE,&7=OTHER AND TWO NUMBERS IMPLY TRANSITIONS.

ASPECT COSINE TRANSFORM AFTER BEERS, ET AL.(1966), WHERE NE=2 & SW=0

TABLE 107.3. S. OF MOGOLLON RIM: SOIL CLASSIFICATION FOR PLOTS IN THE PSEUDOTSUGA MENZIESII/QUERCUS RUGOSA HT

PLOT NO.	MOIST. REGIME	TEMP. REGIME	SUBGROUP
D 73	UDIC	FRIGID	LITHIC UDORTHENT

TABLE 10T.1. S. OF MOGOLLON RIM: LOCATIONS FOR PLOTS IN THE PSEUDOTSUGA MENZIESII/QUERCUS ARIZONICA HT

PLOT NO.	STATE	PHYSIOGR. PROV.	NAT. FOR.	RANGER DIST.	LOCALITY
M 98+	AZ	SIERRA ANCHA	TONTO	YOUNG	S FK PARKER-ROCK S

TABLE 0T.2. S. OF MOGOLLON RIM: SITE CHARACTERISTICS FOR PLOTS IN THE PSEUDOTSUGA MENZIESII/QUERCUS ARIZONICA HT

PLOT NO.	ELEVATION (M)	(FT)	SLOPE (%)	ASPECT DEG	COS	LANDFORM CODE	STONI-NESS	PER CENT GROUND COVER SOIL	ROCK	MOSS	VASC	LITTE
4 964	2072	6800	65	270	0.29	3						

LANDFORM CODES: 1=RIDGE,2=UPPER SIDE SLOPE,3=MIDESLOPE,4=LOWER SLOPE, 5=BENCH,6=STREAMSIDE,&7=OTHER AND TWO NUMBERS IMPLY TRANSITIONS.

ASPECT COSINE TRANSFORM AFTER BEERS, ET AL.(1966), WHERE NE=2 & SW=0

TABLE OT.3. S. OF MOGOLLON RIM: SOIL CLASSIFICATION FOR PLOTS IN THE PSEUDOTSUGA MENZIESII/QUERCUS ARIZONICA HT

PLOT NO.	MOIST. REGIME	TEMP. REGIME	SUBGROUP
M 98.			NOT CLASSIFIED

TABLE 10T.1. S. OF MOGOLLON RIM: LOCATIONS FOR PLOTS IN THE PSEUDOTSUGA MENZIESII/ACER GRADIDENTATUM HT

PLOT NO.	STATE	PHYSIOGR. PROV.	NAT. FOR.	RANGER DIST.	LOCALITY
D 83	AZ	GALIURO MTNS	CORONADO	SAFFORD	ASH CREEK
D 84	AZ	GALIURO MTNS	CORONADO	SAFFORD	BASSETT PEAK

TABLE 01.2. S. OF MOGOLLON RIM: SITE CHARACTERISTICS FOR PLOTS IN THE PSEUDOTSUGA MENZIESII/ACER GRADIDENTATUM HT

PLOT NO.	ELEVATION (M)	(FT)	SLOPE (%)	ASPECT DEG	COS	LANDFORM CODE	STONI-NESS	PER CENT GROUND COVER SOIL	ROCK	MOSS	VASC	LITT
83	1630	5350	15	20	1.91	5	4	0	15	1	1	83
84	2225	7300	70	15	1.87	2	3	0	2	1	3	95

LANDFORM CODES: 1=RIDGE,2=UPPER SIDE SLOPE,3=MIDESLOPE,4=LOWER SLOPE, 5=BENCH,6=STREAMSIDE,&7=OTHER AND TWO NUMBERS IMPLY TRANSITIONS.

ASPECT COSINE TRANSFORM AFTER BEERS, ET AL.(1966), WHERE NE=2 & SW=0

TABLE 0T.3. S. OF MOGOLLON RIM: SOIL CLASSIFICATION FOR PLOTS IN THE PSEUDOTSUGA MENZIESII/ACER GRADIENTATUM HT

PLOT NO.	MOIST. REGIME	TEMP. REGIME	SUBGROUP
D 83	UDIC	FRIGID	ENTIC HAPLUDOLL
D 84	UDIC	FRIGID	PACHIC HAPLUDOLL

LOCATION AND SITE CHARACTERISTICS

FORESTS SOUTH OF THE MOGOLLON RIM: PIPJ, PIEN, AND PILE SERIES

TABLE 10 .1. S. OF MOGOLLON RIM: LOCATIONS FOR PLOTS IN THE PINUS PONDEROSA/MUHLENBERGIA VIRESCENS HT

PLOT NO.	STATE	PHYSIOGR. PROV.	NAT. FOR.	RANGER DIST.	LOCALITY
M 379	AZ	CHIRICAHUA MTNS	CORONADO	DOUGLAS	S FK CN TR-BURNT ST
D 21	AZ	CHIRICAHUA MTNS	CORONADO	DOUGLAS	PINE PARK
D 33	AZ	CHIRICAHUA MTNS	CORONADO	DOUGLAS	RASPBERRY RIDGE
D 75	AZ	PINALENO MTNS	CORONADO	SAFFORD	RIGGS LAKE
D 82	AZ	SANTA TERESA MT	CORONADO	SAFFORD	COTTONWOOD PEAK

TABLE 10 .2. S. OF MOGOLLON RIM: SITE CHARACTERISTICS FOR PLOTS IN THE PINUS PONDEROSA/MUHLENBERGIA VIRESCENS HT

PLOT NO.	ELEVATION (M)	ELEVATION (FT)	SLOPE (%)	ASPECT DEG	ASPECT COS	LANDFORM CODE	STONINESS	PER CENT GROUND COVER SOIL	ROCK	MOSS	VASC	LIT
4	579	2316	7600	61	75	1.87	4	1	1	1	0	3	95
0	21	2414	7920	25	314	0.90	12	1	0	1	1	2	97
0	53	2828	9280	30	137	0.21	2	3	T	10	T	3	87
0	76	2670	8760	21	107	1.47	2	3	T	8	T	3	89
0	82	2240	7350	20	325	1.17	4	2	0	1	T	5	94

LANDFORM CODES: 1=RIDGE,2=UPPER SIDE SLOPE,3=MIDESLOPE,4=LOWER SLOPE, 5=BENCH,6=STREAMSIDE,&7=OTHER AND TWO NUMBERS IMPLY TRANSITIONS.

ASPECT COSINE TRANSFORM AFTER BEERS, ET AL.(1966), WHERE NE=2 & SW=0

TABLE 10 .3. S. OF MOGOLLON RIM: SOIL CLASSIFICATION FOR PLOTS IN THE PINUS PONDEROSA/MUHLENBERGIA VIRESCENS HT

PLOT NO.	MOIST. REGIME	TEMP. REGIME	SUBGROUP
M 379			NOT CLASSIFIED
D 21	USTIC	FRIGID	UDIC USTOCHREPT
D 33	USTIC	FRIGID	UDIC USTOCHREPT
D 75	USTIC	FRIGID	UDIC USTOCHREPT
D 82	USTIC	FRIGID	UDIC USTOCHREPT

TABLE II .1. S. OF MOGOLLON RIM: LOCATIONS FOR PLOTS IN THE PINUS PONDEROSA/QUERCUS GAMBELII HT

PLOT NO.	STATE	PHYSIOGR. PROV.	NAT. FOR.	RANGER DIST.	LOCALITY
D 51	AZ	GALIURO MTNS	CORONADO	SAFFORD	HIGH CREEK
D 53	AZ	GALIURO MTNS	CORONADO	SAFFORD	HIGH CREEK
D 59	AZ	PINAL MTNS	TONTO	GLOBE	PIONEER PASS CG
D 74	AZ	PINALENO MTNS	CORONADO	SAFFORD	RIGGS LAKE
D 77	AZ	PINALENO MTNS	CORONADO	SAFFORD	SHAKE SPRINGS TRAI

TABLE 11 .2. S. OF MOGOLLON RIM: SITE CHARACTERISTICS FOR PLOTS IN THE PINUS PONDEROSA/QUERCUS GAMBELII HT

	PLOT NO.	ELEVATION (M)	ELEVATION (FT)	SLOPE (%)	ASPECT DEG	ASPECT COS	LANDFORM CODE	STONINESS	PER CENT GROUND COVER SOIL	ROCK	MOSS	VASC	LITTE
O	51	1847	6060	32	350	1.57	4	3	T	5	1	6	88
O	53	1865	6120	39	18	1.89	4	2	T	T	1	2	97
O	59	1828	6000	46	326	1.19	3	2	2	2	1	1	94
O	74	2627	8620	55	288	0.55	2	4	T	15	T	7	78
O	77	2609	8560	31	260	0.18	3	2	T	2	T	3	95

LANDFORM CODES: 1=RIDGE,2=UPPER SIDE SLOPE,3=MIDESLOPE,4=LOWER SLOPE, 5=BENCH,6=STREAMSIDE,&7=OTHER AND TWO NUMBERS IMPLY TRANSITIONS.

ASPECT COSINE TRANSFORM AFTER BEERS, ET AL.(1966), WHERE NE=2 & SW=0

TABLE II .3. S. OF MOGOLLON RIM: SOIL CLASSIFICATION FOR PLOTS IN THE PINUS PONDEROSA/QUERCUS GAMBELII HT

PLOT NO.	MOIST. REGIME	TEMP. REGIME	SUBGROUP
U 51	USTIC	FRIGID	TYPIC HAPLOBOROLL
U 53	USTIC	FRIGID	UDIC HAPLOBOROLL
U 59	USTIC	FRIGID	TYPIC EUTROBORALF
U 74	USTIC	FRIGID	ENTIC HAPLOBOROLL
U 77	USTIC	FRIGID	ENTIC HAPLOBOROLL

TABLE 12 .1. S. OF MOGOLLON RIM: LOCATIONS FOR PLOTS IN THE PINUS PONDEROSA/QUERCUS HYPOLEUCOIDES HT

PLOT NO.	STATE	PHYSIOGR. PROV.	NAT. FOR.	RANGER DIST.	LOCALITY
D 23	AZ	CHIRICAHUA MTNS	CORONADO	DOUGLAS	HORSESHOE PASS
D 25	AZ	CHIRICAHUA MTNS	CORONADO	DOUGLAS	DOWNINGS PASS MINE
D 27	AZ	CHIRICAHUA MTNS	CORONADO	DOUGLAS	POLE BRIDGE-JOHN L.
D 41	AZ	PINALENO MTNS	CORONADO	SAFFORD	ARCADIA CAMPGROUND
D 42	AZ	PINALENO MTNS	CORONADO	SAFFORD	ARCADIA CAMPGROUND
D 47	AZ	PINALENO MTNS	CORONADO	SAFFORD	SHAKE SPRINGS TRAIL
D 48	AZ	PINALENO MTNS	CORONADO	SAFFORD	SHAKE SPRINGS TRAIL
D 49	AZ	PINALENO MTNS	CORONADO	SAFFORD	NORTH TAYLOR CAN TR
D 52	AZ	GALIURO MTNS	CORONADO	SAFFORD	HEADWATERS-HIGH CR.
D 60	AZ	GALIURO MTNS	CORONADO	SAFFORD	KENNEDY PK TRAIL
D 61	AZ	GALIURO MTNS	CORONADO	SAFFORD	KENNEDY PK TRAIL
D 63	AZ	PINALENO MTNS	CORONADO	SAFFORD	1 MI NW SAWMILL CAN
D 70	AZ	PINALENO MTNS	CORONADO	SAFFORD	DUTCH HENRY CN. TR.
D 71	AZ	PINALENO MTNS	CORONADO	SAFFORD	SHAKE SPRING TRAIL

TABLE 12 .2. S. OF MOGOLLON RIM: SITE CHARACTERISTICS FOR PLOTS IN THE PINUS PONDEROSA/QUERCUS HYPOLEUCOIDES HT

PLOT NO.	ELEVATION (M)	ELEVATION (FT)	SLOPE (%)	ASPECT DEG	ASPECT COS	LANDFORM CODE	STONINESS	PER CENT GROUND COVER SOIL	ROCK	MOSS	VASC	LIT
23	2218	7280	75	55	1.98	12	2	2	8	0	T	9
26	1938	6360	55	360	1.71	2	3	1	5	T	3	9
29	2450	8040	48	145	0.83	12	2	T	4	T	1	9
41	2036	6680	25	6	1.78	3	1	T	2	T	2	9
42	2072	6800	35	126	1.16	2	2	T	5	T	5	9
47	2194	7200	37	164	0.52	4	3	T	15	T	5	8
48	2218	7280	10	190	0.18	5	4	T	12	T	2	8
49	1731	5680	59	333	1.31	3	3	3	7	5	2	8
52	2145	7040	35	222	0.00	1	3	1	15	T	5	7
60	1767	5800	42	60	1.97	4	4	3	15	3	1	7
61	1877	6160	25	353	1.62	1	3	T	3	T	3	8
63	2023	6640	34	340	1.42	2	4	T	15	T	4	8
70	2249	7380	40	200	0.09	1	4	T	20	T	8	7
71	2462	8080	35	107	1.47	34	3	0	7	T	5	8

LANDFORM CODES: 1=RIDGE,2=UPPER SIDE SLOPE,3=MIDESLOPE,4=LOWER SLOPE, 5=BENCH,6=STREAMSIDE,&7=OTHER AND TWO NUMBERS IMPLY TRANSITIONS.

ASPECT COSINE TRANSFORM AFTER BEERS, ET AL.(1966), WHERE NE=2 & SW=0

TABLE 12 .3. S. OF MOGOLLON RIM: SOIL CLASSIFICATION FOR PLOTS IN THE PINUS PONDEROSA/QUERCUS HYPOLEUCOIDES HT

PLOT NO.	MOIST. REGIME	TEMP. REGIME	SUBGROUP
D 23	USTIC	MESIC	TYPIC USTORTHENT
D 26	USTIC	MESIC	UDIC USTOCHREPT
D 29	USTIC	MESIC	UDIC HAPLUSTALF
D 41	USTIC	MESIC	UDIC USTOCHREPT
D 42	USTIC	MESIC	UDIC HAPLUSTALF
D 47	USTIC	MESIC	UDIC HAPLUSTALF
D 48	USTIC	MESIC	UDIC ARGIUSTOLL
D 49	USTIC	MESIC	UDIC USTOCHREPT
D 52	USTIC	MESIC	UDIC USTOCHREPT
D 60	USTIC	MESIC	UDIC HAPLUSTALF
D 61	USTIC	MESIC	UDIC USTOCHREPT
D 63	USTIC	MESIC	LITHIC USTOCHREPT
D 70	USTIC	MESIC	LITHIC USTOCHREPT
D 71	USTIC	MESIC	UDIC HAPLUSTOLL

TABLE 13 .1. S. OF MOGOLLON RIM: LOCATIONS FOR PLOTS IN THE PINUS PONDEROSA/QUERCUS ARIZONICA HT

PLOT NO.	STATE	PHYSIOGR. PROV.	NAT. FOR.	RANGER DIST.	LOCALITY
M 981	AZ	PINAL MTNS.	TONTO	GLOBE	PIONEER PASS ROAD
M 983	AZ	SIERRA ANCHA	TONTO	YOUNG	S FK PARKER CREEK
M 985	AZ	BIG LOE MTNS.	APACHE	CLIFTON	COAL CREEK
M 987	AZ	BIG LOE MTNS.	APACHE	CLIFTON	COAL CR. EXCLOSURE
O 45	AZ	PINALENO MTNS	CORONADO	SAFFORD	SHAKE SPRINGS TRAI
O 54	AZ	PINAL MTNS	TONTO	GLOBE	PINAL PEAK ROAD
O 55	AZ	PINAL MTNS	TONTO	GLOBE	PINAL PEAK ROAD
O 57	AZ	PINAL MTNS	TONTO	GLOBE	SIXSHOOTERCANYON
O 58	AZ	PINAL MTNS	TONTO	GLOBE	PIONEER PASS CG
O 65	AZ	SANTA TERESA MT	CORONADO	SAFFORD	COTTONWOOD MOUNTAI
O 83	AZ	GALIURO MTNS	CORONADO	SAFFORD	ASH CREEK
O 85	AZ	SANTA TERESA MT	CORONADO	SAFFORD	COTTONWOOD MTN

TABLE 13 .2. S. OF MOGOLLON RIM: SITE CHARACTERISTICS FOR PLOTS IN THE PINUS PONDEROSA/QUERCUS ARIZONICA HT

PLOT NO.	ELEVATION (M)	(FT)	SLOPE (%)	ASPECT DEG	COS	LANDFORM CODE	STONINESS	PER CENT GROUND COVER SOIL	ROCK	MOSS	VASC	LITTE
M 981	1676	5500	60	350	1.57	3		3	0	0	0	97
M 985	2103	6900	0	360	1.71	1						
M 986	1761	5780	15	265	0.23	3		6	0	0	T	94
M 987	1743	5720	1	360	1.71	5		20	0	1	4	75
O 46	2157	7080	13	194	0.14	5	3	1	10	T	3	86
O 54	1950	6400	30	208	0.04	1	2	2	8	T	3	87
O 55	2048	6720	30	240	0.03	2	1	1	1	T	2	96
O 57	1523	5000	28	322	1.12	2	2	2	2	T	2	94
O 58	1816	5960	46	290	0.58	3	2	3	1	1	1	94
O 65	2206	7240	13	310	0.91	12	2	T	2	0	3	[illegible]
O 68	1597	5240	14	97	1.62	5	1	T	T	1	4	95
O 80	2179	7150	32	130	1.09	4	2	0	1	T	3	96

LANDFORM CODES: 1=RIDGE,2=UPPER SIDE SLOPE,3=MIDESLOPE,4=LOWER SLOPE, 5=BENCH,6=STREAMSIDE,&7=OTHER AND TWO NUMBERS IMPLY TRANSITIONS.

ASPECT COSINE TRANSFORM AFTER BEERS, ET AL.(1966), WHERE NE=2 & SW=0

TABLE 13 .3. S. OF MOGOLLON RIM: SOIL CLASSIFICATION FOR PLOTS IN THE PINUS PONDEROSA/QUERCUS ARIZONICA HT

PLOT NO.	MOIST. REGIME	TEMP. REGIME	SUBGROUP
M 981	USTIC	MESIC	USTOCHREPT
M 983			NOT CLASSIFIED
M 985	USTIC	MESIC	UDIC HAPLUSTALF
M 987	USTIC	MESIC	TYPIC USTIFLUVENT
D 45	USTIC	MESIC	UDIC HAPLUSTALF
D 54	USTIC	MESIC	UDIC USTOCHREPT
D 55	USTIC	MESIC	LITHIC USTOCHREPT
D 57	USTIC	MESIC	LITHIC USTOCHREPT
D 58	USTIC	MESIC	UDIC HAPLUSTALF
D 63	USTIC	MESIC	UDIC USTOCHREPT
D 68	USTIC	MESIC	UDIC HAPLUSTOLL
D 69	USTIC	MESIC	UDIC HAPLUSTALF

TABLE 14 .I. S. OF MOGOLLON RIM: LOCATIONS FOR PLOTS IN THE PINUS LEIOPHYLLA/QUERCUS HYPOLEUCOIDES HT

PLOT NO.	STATE	PHYSIOGR. PROV.	NAT. FOR.	RANGER DIST.	LOCALITY
D 5	NM	PELONCILLO MTNS	CORONADO	DOUGLAS	CLANTON DRAW
D 17	AZ	CHIRICAHUA MTNS	CORONADO	DOUGLAS	HERB MARTYR-SNOWSHE
D 24	AZ	CHIRICAHUA MTNS	CORONADO	DOUGLAS	PINERY CANYON CG
D 30	AZ	CHIRICAHUA MTNS	CORONADO	DOUGLAS	POLE BRIDGE CAN
D 36	AZ	CHIRICAHUA MTNS	CORONADO	DOUGLAS	NORTH FORK
D 39	AZ	CHIRICAHUA MTNS	CORONADO	DOUGLAS	2 MI S UNION SADDLE
D 45	AZ	PINALENO MTNS	CORONADO	SAFFORD	ARCADIA CAMPGROUND

TABLE 14 .2. S. OF MOGOLLON RIM: SITE CHARACTERISTICS FOR PLOTS IN THE PINUS LEIOPHYLLA/QUERCUS HYPOLEUCOIDES HT

PLOT NO.	ELEVATION (M)	(FT)	SLOPE (%)	ASPECT DEG	COS	LANDFORM CODE	STONINESS	PER CENT GROUND COVER SOIL	ROCK	MOSS	VASC	LITT
5	1714	5625	32	45	2.00	3	2	T	9	0	1	90
17	1950	6400	20	260	0.18	23	2	T	8	T	4	88
24	2157	7080	38	238	0.03	3	2	2	4	T	5	89
30	1950	6400	19	22	1.92	4	2	0	2	T	3	95
35	1999	6560	9	160	0.58	5	2	T	5	T	2	93
39	2109	6920	30	128	1.12	3	2	T	3	1	7	89
45	2078	6820	25	180	0.29	2	2	1	8	T	3	88

LANDFORM CODES: 1=RIDGE,2=UPPER SIDE SLOPE,3=MIDESLOPE,4=LOWER SLOPE, 5=BENCH,6=STREAMSIDE,&7=OTHER AND TWO NUMBERS IMPLY TRANSITIONS.

ASPECT COSINE TRANSFORM AFTER BEERS, ET AL.(1966), WHERE NE=2 & SW=0

TABLE 14 .3. S. OF MOGOLLON RIM: SOIL CLASSIFICATION FOR PLOTS IN THE PINUS LEIOPHYLLA/QUERCUS HYPOLEUCOIDES HT -

PLOT NO.	MOIST. REGIME	TEMP. REGIME	SUBGROUP
D 5	USTIC	MESIC	TYPIC USTORTHENT
D 17	USTIC	MESIC	UDIC USTOCHREPT
D 24	USTIC	MESIC	UDIC HAPLUSTOLL
D 30	USTIC	MESIC	UDIC USTOCHREPT
D 36	USTIC	MESIC	UDIC USTOCHREPT
D 39	USTIC	MESIC	UDIC HAPLUSTALF
D 45	USTIC	MESIC	UDIC USTOCHREPT

TABLE 15 .1. S. OF MOGOLLON RIM: LOCATIONS FOR PLOTS IN THE PINUS LEIOPHYLLA/QUERCUS ARIZONICA HT

PLOT NO.	STATE	PHYSIOGR. PROV.	NAT. FOR.	RANGER DIST.	LOCALITY
M 983	NM	PELONCILLO MTNS	CORONADO	DOUGLAS	WALNUT CANYON
D 3	NM	PELONCILLO MTNS	CORONADO	DOUGLAS	CLANTON DRAW
D 4	NM	PELONCILLO MTNS	CORONADO	DOUGLAS	CLANTON DRAW
D 5	NM	PELONCILLO MTNS	CORONADO	DOUGLAS	CLANTON DRAW
D 13	NM	PELONCILLO MTNS	CORONADO	DOUGLAS	SKELETON CAN. AREA
D 31	AZ	CHIRICAHUA MTNS	CORONADO	DOUGLAS	PINE GULCH
D 32	AZ	CHIRICAHUA MTNS	CORONADO	DOUGLAS	PINE GULCH
D 44	AZ	PINALENO MTNS	CORONADO	SAFFORD	WET CAN PICNIC AR
D 50	AZ	PINALENO MTNS	CORONADO	SAFFORD	NORTH TAYLOR CAN
D 66	AZ	GALIURO MTNS	CORONADO	SAFFORD	ASH CR. WATER TAN
D 67	AZ	GALIURO MTNS	CORONADO	SAFFORD	ASH CR. WATER TAN

TABLE 15 .2. S. OF MOGOLLON RIM: SITE CHARACTERISTICS FOR PLOTS IN THE PINUS LEIOPHYLLA/QUERCUS ARIZONICA HT

	PLOT NO.	ELEVATION (M)	(FT)	SLOPE (%)	ASPECT DEG	COS	LANDFORM CODE	STONINESS	PER CENT GROUND COVER SOIL	ROCK	MOSS	VASC	LITTE
M	988	1706	5600	2	90	1.71	6		5	T	0	T	95
O	3	1691	5550	35	30	1.97	3	3	T	15	T	1	85
O	4	1737	5700	18	10	1.82	4	2	3	30	0	2	65
O	6	1737	5700	30	40	2.00	4	2	1	35	T	2	62
O	13	1511	4960	25	68	1.92	4	3	2	20	T	7	71
O	31	1853	6080	5	197	0.12	5	3	1	15	T	6	78
O	32	1987	6520	25	294	0.64	3	2	T	25	T	5	70
O	44	1822	5980	9	28	1.96	5	3	3	10	1	8	78
O	50	1792	5880	25	85	1.77	12	2	4	15	1	4	76
O	66	1578	5180	46	40	2.00	4	3	2	20	1	3	
O	67	1591	5220	28	205	0.06	4	4	3	30	T	4	63

LANDFORM CODES: 1=RIDGE,2=UPPER SIDE SLOPE,3=MIDESLOPE,4=LOWER SLOPE, 5=BENCH,6=STREAMSIDE,&7=OTHER AND TWO NUMBERS IMPLY TRANSITIONS.

ASPECT COSINE TRANSFORM AFTER BEERS, ET AL.(1966), WHERE NE=2 & SW=0

TABLE 15 .3. S. OF MOGOLLON RIM: SOIL CLASSIFICATION FOR PLOTS IN THE PINUS LEIOPHYLLA/QUERCUS ARIZONICA HT

PLOT NO.	MOIST. REGIME	TEMP. REGIME	SUBGROUP
M 983			NOT CLASSIFIED
D 3	USTIC	MESIC	LITHIC HAPLUSTOLL
D 4	USTIC	MESIC	LITHIC USTORTHENT
D 5	USTIC	MESIC	UDIC USTOCREPT
D 13	USTIC	MESIC	UDIC USTOCHREPT
D 31	USTIC	MESIC	ENTIC HAPLUSTOLL
D 32	USTIC	MESIC	UDIC USTOCHREPT
D 44	USTIC	MESIC	UDIC USTOCHREPT
D 50	USTIC	MESIC	LITHIC USTORTHENT
D 66	USTIC	MESIC	LITHIC HAPLUSTOLL
D 67	USTIC	MESIC	LITHIC USTOCHREPT

TABLE 16 .1. S. OF MOGOLLON RIM: LOCATIONS FOR PLOTS IN THE PINUS LEIOPHYLLA/PIPTOCHAETIUM FIMBRIATUM HT

PLOT NO.	STATE	PHYSIOGR. PROV.	NAT. FOR.	RANGER DIST.	LOCALITY
D 11	AZ	CHIRICAHUA MTNS	CORONADO	DOUGLAS	SW RESEARCH STATION
D 12	NM	PELONCILLO MTNS	CORONADO	DOUGLAS	SKELETON CAN. AREA
D 15	AZ	CHIRICAHUA MTNS	CORONADO	DOUGLAS	HERB MARTYR-SNOWSHD
D 18	AZ	CHIRICAHUA MTNS	CORONADO	DOUGLAS	SOUTH FK CAVE CREEK
D 27	AZ	CHIRICAHUA MTNS	CORONADO	DOUGLAS	PINE CANYON
D 28	AZ	CHIRICAHUA MTNS	CORONADO	DOUGLAS	PINERY CANYON

TABLE 16 .2. S. OF MOGOLLON RIM: SITE CHARACTERISTICS FOR PLOTS IN THE PINUS LEIOPHYLLA/PIPTOCHAETIUM FIMBRIATUM HT

PLOT NO.	ELEVATION (M)	(FT)	SLOPE (%)	ASPECT DEG	COS	LANDFORM CODE	STONINESS	PER CENT GROUND COVER SOIL	ROCK	MOSS	VASC	LITT
11	1661	5450	4	15	1.87	5	2	T	1	0	1	98
12	1511	4960	3	320	1.09	5	2	T	3	T	5	92
16	1828	6000	4	328	1.22	5	2	T	3	T	3	94
18	1603	5260	4	12	1.84	5	1	0	1	T	4	95
27	1816	5960	4	277	0.38	6	2	1	4	T	4	91
28	1786	5860	10	282	0.46	5	2	3	5	T	2	90

LANDFORM CODES: 1=RIDGE,2=UPPER SIDE SLOPE,3=MIDESLOPE,4=LOWER SLOPE, 5=BENCH,6=STREAMSIDE,&7=OTHER AND TWO NUMBERS IMPLY TRANSITIONS.

ASPECT COSINE TRANSFORM AFTER BEERS, ET AL.(1966), WHERE NE=2 & SW=0

TABLE 16 .3. S. OF MOGOLLON RIM: SOIL CLASSIFICATION FOR PLOTS IN THE PINUS LEIOPHYLLA/PIPTOCHAETIUM FIMBRIATUM HT

PLOT NO.	MOIST. REGIME	TEMP. REGIME	SUBGROUP
D 11	USTIC	MESIC	ODIC ARGIUSTOLL
D 12	USTIC	MESIC	TYPIC USTIFLUVENT
D 15	USTIC	MESIC	ODIC HAPLUSTOLL
D 18	USTIC	MESIC	MOLLIC USTIFLUVENT
D 27	USTIC	MESIC	FLUVENTIC HAPLUSTOLL
D 28	USTIC	MESIC	ODIC HAPLUSTOLL

TABLE APPT.1. S. OF MOGOLLON RIM: LOCATIONS FOR PLOTS IN THE PINUS PONDEROSA/QUERCUS RUGOSA HT

PLOT NO.	STATE	PHYSIOGR. PROV.	NAT. FOR.	RANGER DIST.	LOCALITY
D 73	AZ	PINALENO MTNS	CORONADO	SAFFORD	CLARK PEAK
D 75	AZ	PINALENO MTNS	CORONADO	SAFFORD	RIGGS LAKE
D 79	AZ	PINALENO MTNS	CORONADO	SAFFORD	LADYBUG SADDLE

TABLE 0T.2. S. OF MOGOLLON RIM: SITE CHARACTERISTICS FOR PLOTS IN THE PINUS PONDEROSA/QUERCUS RUGOSA HT

PLOT NO.	ELEVATION (M)	(FT)	SLOPE (%)	ASPECT DEG	COS	LANDFORM CODE	STONINESS	PER CENT GROUND COVER SOIL	ROCK	MOSS	VASC	LITTE
73	2682	8800	34	105	1.50	2	3	4	8	T	4	84
75	2657	8720	17	112	1.39	2	3	T	5	.T	1	94
79	2529	8300	55	220	0.00	3	2	T	2	T	3	95

LANDFORM CODES: 1=RIDGE,2=UPPER SIDE SLOPE,3=MIDESLOPE,4=LOWER SLOPE, 5=BENCH,6=STREAMSIDE,&7=OTHER AND TWO NUMBERS IMPLY TRANSITIONS.

ASPECT COSINE TRANSFORM AFTER BEERS, ET AL.(1966), WHERE NE=2 & SW=0

TABLE 07.3. S. OF MOGOLLON RIM: SOIL CLASSIFICATION FOR PLOTS IN THE PINUS PONDEROSA/QUERCUS RUGOSA HT

PLOT NO.	MOIST. REGIME	TEMP. REGIME	SUBGROUP
0 73	USTIC	MESIC	ENTIC HAPLOSTOLL
0 75	USTIC	MESIC	OOIC HAPLOSTALF
0 79	USTIC	MESIC	OOIC OSTOCHREPT

TABLE 10T.1. S. OF MOGOLLON RIM: LOCATIONS FOR PLOTS IN THE PINUS PONDEROSA/BOUTELOUA GRACILIS HT

PLOT NO.	STATE	PHYSIOGR. PROV.	NAT. FOR.	RANGER DIST.	LOCALITY
D 81	AZ	SANTA TERESA MT	CORONADO	SAFFORD	COTTONWOOD MTN

TABLE 01.2. S. OF MOGOLLON RIM: SITE CHARACTERISTICS FOR PLOTS IN THE PINUS PONDEROSA/BOUTELOUA GRACILIS HT

PLOT NO.	ELEVATION (M)	ELEVATION (FT)	SLOPE (%)	ASPECT DEG	ASPECT COS	LANDFORM CODE	STONINESS	PER CENT GROUND COVER SOIL	ROCK	MOSS	VASC	LITT
D 81	2179	7150	28	345	1.50	4	2	2	4	1	3	90

LANDFORM CODES: 1=RIDGE,2=UPPER SIDE SLOPE,3=MIDESLOPE,4=LOWER SLOPE, 5=BENCH,6=STREAMSIDE,57=OTHER AND TWO NUMBERS IMPLY TRANSITIONS.

ASPECT COSINE TRANSFORM AFTER BEERS, ET AL.(1966), WHERE NE=2 & SW=0

TABLE 01.3. S. OF MOGOLLON RIM: SOIL CLASSIFICATION FOR PLOTS IN THE PINUS PONDEROSA/BOUTELOUA GRACILIS HT

PLOT NO.	MOIST. REGIME	TEMP. REGIME	SUBGROUP
D 81	USTIC	MESIC	UDIC HAPLUSTALF

TABLE 107.1. S. OF MOGOLLON RIM: LOCATIONS FOR PLOTS IN THE PINUS ENGELMANNII/MUHLENBERGIA LONGILIGULA HT

PLOT NO.	STATE	PHYSIOGR. PROV.	NAT. FOR.	RANGER DIST.	LOCALITY
D 19	AZ	CHIRICAHUA MTNS	CORONADO	DOUGLAS	CYPRESS SADDLE

TABLE 10T.2. S. OF MOGOLLON RIM: SITE CHARACTERISTICS FOR PLOTS IN THE PINUS ENGELMANNII/MUHLENBERGIA LONGILIGULA HT

PLOT NO.	ELEVATION (M)	ELEVATION (FT)	SLOPE (%)	ASPECT DEG	ASPECT COS	LANDFORM CODE	STONINESS	PER CENT GROUND COVER SOIL	ROCK	MOSS	VASC	LITTE
19	2103	6900	58	29	1.96	12	2	T	1	1	6	92

LANDFORM CODES: 1=RIDGE,2=UPPER SIDE SLOPE,3=MIDESLOPE,4=LOWER SLOPE, 5=BENCH,6=STREAMSIDE,&7=OTHER AND TWO NUMBERS IMPLY TRANSITIONS.

ASPECT COSINE TRANSFORM AFTER BEERS, ET AL.(1966), WHERE NE=2 & SW=0

TABLE 67.3. S. OF MOGOLLON RIM: SOIL CLASSIFICATION FOR PLOTS IN THE PINUS ENGELMANNII/MUHLENBERGIA LONGILIGULA HT

PLOT NO.	MOIST. REGIME	TEMP. REGIME	SUBGROUP
5 19	USTIC	FRIGID	TYPIC EUTROBORALF

TABLE 10T.1. S. OF MOGOLLON RIM: LOCATIONS FOR PLOTS IN THE PINUS ENGELMANNII/QUERCUS HYPOLEUCOIDES HT

PLOT NO.	STATE	PHYSIOGR. PROV.	NAT. FOR.	RANGER DIST.	LOCALITY
0 15	AZ	CHIRICAHUA MTNS	CORONADO	DOUGLAS	HERB MARTYR-SNOWSHD
0 20	AZ	CHIRICAHUA MTNS	CORONADO	DOUGLAS	SNOWSHED TRAIL
0 25	AZ	CHIRICAHUA MTNS	CORONADO	DOUGLAS	PINERY CANYON
0 30	AZ	CHIRICAHUA MTNS	CORONADO	DOUGLAS	NORTH FORK

TABLE OT.2. S. OF MOGOLLON RIM: SITE CHARACTERISTICS FOR PLOTS IN THE PINUS ENGELMANNII/QUERCUS HYPOLEUCOIDES HT

PLOT NO.	ELEVATION (M)	ELEVATION (FT)	SLOPE (%)	ASPECT DEG	ASPECT COS	LANDFORM CODE	STONINESS	PER CENT GROUND COVER SOIL	ROCK	MOSS	VASC	LITT
O 15	2109	6920	15	15	1.87	1	1	T	1	O	3	96
O 20	2170	7120	55	320	1.09	2	3	T	5	1	3	91
O 25	1889	6200	15	350	1.57	3	3	T	10	1	3	86
O 36	2072	6800	9	207	0.05	5	1	T	1	T	7	92

LANDFORM CODES: 1=RIDGE,2=UPPER SIDE SLOPE,3=MIDESLOPE,4=LOWER SLOPE, 5=BENCH,6=STREAMSIDE,&7=OTHER AND TWO NUMBERS IMPLY TRANSITIONS.

ASPECT COSINE TRANSFORM AFTER BEERS, ET AL.(1966), WHERE NE=2 & SW=0

TABLE 40T.3. S. OF MOGOLLON RIM: SOIL CLASSIFICATION FOR PLOTS IN THE PINUS ENGELMANNII/QUERCUS HYPOLEUCOIDES HT

PLOT NO.	MOIST. REGIME	TEMP. REGIME	SUBGROUP
D 15	USTIC	MESIC	UDIC USTOCHREPT
D 20	USTIC	MESIC	UDIC HAPLUSTOLL
D 25	USTIC	MESIC	UDIC USTOCHREPT
D 30	USTIC	MESIC	UDIC USTOCHREPT

TABLE 0T.1. S. OF MOGOLLON RIM: LOCATIONS FOR PLOTS IN THE PINUS ENGELMANNII/QUERCUS ARIZONICA HT

PLOT NO.	STATE	PHYSIOGR. PROV.	NAT. FOR.	RANGER DIST.	LOCALITY
D 40	AZ	CHIRICAHUA MTNS	NA	NA	BONITA PARK

TABLE 40T.2. S. OF MOGOLLON RIM: SITE CHARACTERISTICS FOR PLOTS IN THE PINUS ENGELMANNII/QUERCUS ARIZONICA HT

PLOT NO.	ELEVATION (M)	ELEVATION (FT)	SLOPE (%)	ASPECT DEG	ASPECT COS	LANDFORM CODE	STONINESS	PER CENT GROUND COVER SOIL	ROCK	MOSS	VASC	LITTE
J 40	1908	6260	3	170	0.43	5	0	1	T	T	2	97

LANDFORM CODES: 1=RIDGE,2=UPPER SIDE SLOPE,3=MIDESLOPE,4=LOWER SLOPE, 5=BENCH,6=STREAMSIDE,&7=OTHER AND TWO NUMBERS IMPLY TRANSITIONS.

ASPECT COSINE TRANSFORM AFTER BEERS, ET AL.(1966), WHERE NE=2 & SW=0

TABLE 0T.3. S. OF MOGOLLON RIM: SOIL CLASSIFICATION FOR PLOTS IN THE PINUS ENGELMANNII/QUERCUS ARIZONICA HT

PLOT NO.	MOIST. REGIME	TEMP. REGIME	SUBGROUP
D 40	USTIC	MESIC	MOLLIC USTIFLUVENT

TABLE 10T.1. S. OF MOGOLLON RIM: LOCATIONS FOR PLOTS IN THE PINUS LEIOPHYLLA/QUERUS TOUMEYI HT

PLOT NO.	STATE	PHYSIOGR. PROV.	NAT. FOR.	RANGER DIST.	LOCALITY
D 22	AZ	CHIRICAHUA MTNS	CORONADO	DOUGLAS	BURRO TRAIL

TABLE OT.2. S. OF MOGOLLON RIM: SITE CHARACTERISTICS FOR PLOTS IN THE PINUS LEIOPHYLLA/QUERUS TOUMEYI HT

PLOT NO.	ELEVATION (M)	ELEVATION (FT)	SLOPE (%)	ASPECT DEG	ASPECT COS	LANDFORM CODE	STONINESS	PER CENT GROUND COVER SOIL	ROCK	MOSS	VASC	LITT
0 22	1859	6100	10	249	0.09	1	3	4	23	T	3	7(

LANDFORM CODES: 1=RIDGE,2=UPPER SIDE SLOPE,3=MIDESLOPE,4=LOWER SLOPE, 5=BENCH,6=STREAMSIDE,&7=OTHER AND TWO NUMBERS IMPLY TRANSITIONS.

ASPECT COSINE TRANSFORM AFTER BEERS, ET AL.(1966), WHERE NE=2 & SW=0

TABLE 107.3. S. OF MOGOLLON RIM: SOIL CLASSIFICATION FOR PLOTS IN THE PINUS LEIOPHYLLA/QUERUS TOUMEYI HT

PLOT NO.	MOIST. REGIME	TEMP. REGIME	SUBGROUP
D 22	USTIC	MESIC	LITHIC USTORTHENT

Table A-5. Successional status of trees within the forest habitat types south of the Mogollen Rim in Arizona and New Mexico. C=major climax, c=minor climax, S=major seral, and s=minor seral. See Appendix Table 1 for code definitions.

HT	ABLA	PIEN	ABCO	PSME	PIST	PIPO	PINEN	PILE	POTR	QUGA	QUHY	QUAR	PIDI	JUDE
ABLA/VAMY	C	C							s					
ABLA/MOSS	C	C		s					s					
PIEN/CAFO	c	C		s					s					
PIEN/ACGL		C	s	S	s				S					
ABCO/ACGL			C	C	s				S					
ABCO/CAFO			C	C	S	s			S					
ABCO/SPARSE			C	C	S	s			s					
ABCO/QUGA			C	C	S	S	s			S	s			s
ABCO/ACGR			C	c	s					s				
PSME/MUVI			c	C	S	S	s							
PSME/QUGA				C	s	S	s			S	s			s
PSME/QURU				C	s	S					s			
PSME/QUHY				C		S	s				S	S	s	s
PSME/QUAR				C		S						S	s	s
PSME/ACGR				C		s				s	s	s		s
PIPO/MUVI				c	c	C	c				s			s

Table A-5. (continued)

HT	ABLA	PIEN	ABCO	PSME	PIST	PIPO	PINEN	PILE	POTR	QUGA	QUHY	QUAR	PIDI	JUDE
PIPO QUGA						C	c			S	s		c	c
PIPO QURU						C					s			
PIPO QUHY						C	c	s			S	S	c	c
PIPO QUAR						C		s				S	c	C
PIPO BOGR						C							C	c
PINEN MULE							C			S	s		c	c
PINEN QUHY							C	s			S	S	c	c
PINEN QUAR							C	S				S	c	C
PILE QUHY								C			S	S	C	C
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